

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

=> d his

(FILE 'HCAPLUS' ENTERED AT 17:03:52 ON 29 DEC 1999)

DEL HIS
E DE96-19632521/AP, PRN
L1 1 S E3,E4
E DE97-19725362/AP, PRN
L2 1 S E4
E WO97-EP4396/AP, PRN
L3 1 S E3,E4
L4 1 S L1-L3
E FORSSMAN/AU
L5 272 S E10-E16
E SCHULZ KNAPPE/AU
L6 51 S E5,E6
E SCHULZ KNAP/AU
E SCHRADER M/AU
L7 77 S E3-E7,E18-E20
E OPITZ H/AU
L8 57 S E3-E4,E9-E11
E BIOVIS/PA,CS
L9 2 S E5-E8
L10 400 S L5-L9
L11 30 S L10 AND 9/SC
L12 9 S L10 AND 9/SX
L13 39 S L11,L12
L14 21 S L13 AND (PROTEIN# OR PEPTIDE#)/CW
L15 3 S L13 AND (PROTEIN# OR PEPTIDE#)/CW (L) (ANT OR PUR OR ANST OR
L16 18 S L14 NOT L15
L17 84590 S (PROTEIN# OR PEPTIDE#)/CW (L) (ANT/RL OR ANST/RL OR OCCU/RL O
L18 13658 S (PROTEIN# OR PEPTIDE#)/CW (L) ANALYSIS/CW
L19 16 S L17,L18 AND L13
L20 20 S (?CHROMATOG? OR ?SPECTROM?) AND L13
L21 14 S L20 AND L15,L19
L22 3 S L4,L15
L23 11 S L21 NOT L22
L24 9 S L23 AND 9/SC
L25 12 S L22,L24
L26 9 S L16,L19 NOT L25
L27 3 S L10 AND LOW MOLECULAR WEIGHT
L28 1 S L27 AND L13
L29 2 S L27 NOT L28
L30 3 S L22,L28
L31 18 S L25,L26 NOT L30
L32 14268 S L17,L18 AND (?CHROMATOG? OR ?SPECTROM?)
L33 8281 S L32 AND 9/SC
L34 141 S L33 AND LOW MOLECULAR WEIGHT
L35 4 S L34 AND (PROCARYOT? OR EUKARYOT? OR MULTICELL? OR TISSUE)
L36 4 S L34 AND TRANSFORM?
L37 7 S L35,L36
L38 4 S DIAGNOS? AND L34
L39 5 S L34 AND (URINE OR BLOOD OR BODY FLUID)/CT
L40 14 S L37-L39
L41 18 S L31 NOT L40

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 17:22:13 ON 29 DEC 1999
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 1999 AMERICAN CHEMICAL SOCIETY (ACS)

Point of Contact:
Jan Delaval
Librarian-Physical Sciences
CM1 1E01 Tel: 308-4498

FILE COVERS 1967 - 29 Dec 1999 VOL 132 ISS 1
 FILE LAST UPDATED: 28 Dec 1999 (19991228/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REG1stRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

=> d all tot 140

L40 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 1999 ACS
 AN 1998:126411 HCAPLUS
 DN 128:164730
 TI Process for determining the status of an organism by peptide pattern determination using **chromatography** and mass **spectrometry**
 IN Forssmann, Wolf-Georg; Schulz-Knappe, Peter; Schrader, Michael; Opitz, Hans-Georg
 PA Forssmann, Wolf-Georg, Germany; Schulz-Knappe, Peter; Schrader, Michael; Opitz, Hans-Georg
 SO PCT Int. Appl., 24 pp.
 CODEN: PIXXD2
 DT Patent
 LA German
 IC ICM G01N033-68
 CC 9-16 (Biochemical Methods)
 Section cross-reference(s): 6, 14

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9807036	A1	19980219	WO 1997-EP4396	19970813
	W: AL, AU, BA, BB, BG, BR, BY, CA, CN, CU, CZ, DE, EE, GE, HU, IL, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	DE 19632521	A1	19980219	DE 1996-19632521	19960813
	AU 9742988	A1	19980306	AU 1997-42988	19970813
	EP 922226	A1	19990616	EP 1997-918977	19970813
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, LU, NL, SE, PT, IE, SI, LT, LV, RO				

PRAI DE 1996-19632521 19960813
 DE 1997-19725362 19970616
 WO 1997-EP4396 19970813

AB The invention concerns a process to det. the status of an organism by measuring peptides in a sample of the organism which contains high-mol.-wt. and low-mol. wt. peptides; the pattern of the low-mol.-peptides acts as an indicator of the organism's status when compared to ref. peptide patterns. Body fluids, **tissues** or whole organisms can be analyzed. Low-mol.-wt. peptides up to 30 kDalton, but preferably between 100 and 10,000 Dalton are first isolated e.g. by ultrafiltration and than sepd. by gel filtration, reverse phase **chromatog.** etc.; fractions are collected and analyzed by mass **spectrometry**, e.g. MALDI, electrospray ionization mass **spectrometry**. Thus, a pattern reflecting mol. wt., **chromatog.** behavior, etc., is obtained and this pattern is compared to peptide patterns of ref. sources. **Transformed** microorganisms can be compared to wild types and body fluids of sick or medicated patients can be compared to healthy individuals. Thus, blood-derived filtrate was applied to a **chromatog.** column and fractions were collected with seven

different eluents having pH values from 3.6 to 9.0. The fractions were sep. applied to a reverse-phase column and the 4 mL fractions were further sepd. with a microbore reverse-phase column; UV detection and online electrospray ionization mass **spectrometry** were used in the pos. ion mode. The fractions were also analyzed in a MALDI using an L(-)fucose matrix. The pattern of peptides was compared to databanks, e.g. Swiss-Prot and EMBL.

ST organism peptide pattern **chromatog** mass spectroscopy
 IT Ascites
 Blood analysis
 Body fluid
 Chromatography
 Diagnosis
 Electrospray ionization mass **spectrometry**
 Gel permeation **chromatography**
 Matrix-assisted laser desorption ionization mass **spectrometry**
 Microorganism
 Reversed phase **chromatography**
 Transformation (genetic)
 Ultrafiltration
 Urine analysis
 (process for detg. status of organism by peptide pattern detn. using
 chromatog. and mass **spectrometry**)
 IT Peptides, analysis
 RL: ANT (Analyte); BOC (Biological occurrence); PUR
 (Purification or recovery); ANST (Analytical study); BIOL
 (Biological study); OCCU (Occurrence); PREP (Preparation)
 (process for detg. status of organism by peptide pattern detn. using
 chromatog. and mass **spectrometry**)

L40 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 1999 ACS
 AN 1996:564457 HCAPLUS
 DN 125:241979
 TI Direct-injection HPLC: **Chromatography** of biofluids without protein removal
 AU Anderson, David J.
 CS Department Chemistry, Cleveland State University, Cleveland, OH, 44115,
 USA
 SO Methodol. Surv. Bioanal. Drugs (1996), 24(Biofluid Assay for Peptide-Related and Other Drugs), 183-193
 CODEN: MSBDE6
 DT Journal; General Review
 LA English
 CC 9-0 (Biochemical Methods)
 AB A review with 33 refs. Several investigators have devised ways to allow direct injection of protein-contg. samples in the RP-HPLC anal. of low mol. wt. analytes. The two approaches, used, pre-column and raM* techniques, are now reviewed, with crit. assessment of the advantages and disadvantages of each.
 ST review HPLC **chromatog** biofluid protein
 IT Body fluid
 (direct-injection HPLC: **chromatog.** of biofluids without protein removal)
 IT Proteins, analysis
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)
 (direct-injection HPLC: **chromatog.** of biofluids without protein removal)
 IT **Chromatography**, column and liquid
 (high-performance, direct-injection HPLC: **chromatog.** of biofluids without protein removal)
 L40 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 1999 ACS
 AN 1996:272077 HCAPLUS
 DN 125:4874
 TI Micropreparative gel electrophoresis of low-molecular-weight peptides: purification of highly insoluble amyloid peptide

AU fragments
 CS Baumann, Marc; Golabek, Adam; Lalowski, Maciej; Wisniewski, Thomas
 Departments Pathology Neurology, New York Univ. Medical Center, New York,
 NY, 10016, USA
 SO Anal. Biochem. (1996), 236(2), 191-8
 CODEN: ANBCA2; ISSN: 0003-2697
 DT Journal
 LA English
 CC 9-7 (Biochemical Methods)
 AB We have used the continuous-elution micropreparative gel electrophoresis device described by Baumann and Lauraeus (Anal. Biochem. 214, 142-148, 1993) to purify **low-mol.-wt.** peptide fragments from in-gel digested std. proteins as well as highly insol. amyloid peptides. Alzheimer's amyloid .beta.-peptide, gelsolin-derived amyloid peptide of the Finnish type, and a novel amyloid of the British type were purified from either homogenized brain or kidney **tissue** material to a high degree of purity in a single run. Using the high resolving capacity of the Tris-Tricine-SDS buffer system of Schaegger and von Jagow (Anal. Biochem. 166, 368-379, 1978) we were able to isolate two synthetic peptides with Mr 4329 and 3284, differing only by 1045 in mass. The total peptide recovery, as detd. by amino acid sequence anal. and scanning densitometry, ranged between 60 and 80%. In order to demonstrate the utility of this technique we subjected some of the purified peptides to direct N-terminal amino acid sequence anal., mass spectrometry, microbore high-performance liq. **chromatog** ., and immunochem. studies. Our results show that micropreparative gel electrophoresis is an effective tool for the isolation of not only larger polypeptides but also small peptide fragments in a form suitable for further biol. use.
 ST amyloid peptide purifn gel electrophoresis
 IT Proteins, specific or class, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (amyloid; micropreparative gel electrophoresis of **low-mol.-wt.** peptides and purifn. of highly insol. amyloid peptide fragments)
 IT Peptides, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (micropreparative gel electrophoresis of **low-mol.-wt.** peptides and purifn. of highly insol. amyloid peptide fragments)
 L40 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 1999 ACS
 AN 1995:487228 HCAPLUS
 DN 122:260084
 TI Low molecular-weight proteins in urine
 AU Kuroda, Masayoshi
 CS Med. Sch., Teikyo Univ., Japan
 SO Kensa to Gijutsu (1994), 22(13), 1041-8
 CODEN: KTGIDU; ISSN: 0301-2611
 DT Journal; General Review
 LA Japanese
 CC 9-0 (Biochemical Methods)
 AB A review with 9 refs. discussing anal. methods (electrophoresis, ion exchanger **chromatog.**, immunoassay, etc.) for and factors affecting the detn. of **low mol.-wt.** proteins in urine. Clin. applications of the methods. also are discussed.
 ST review protein urine electrophoresis **chromatog** immunoassay
 IT Ion exchangers
 (column **chromatog.**; detn. of **low mol.-wt.** proteins in urine)
 IT Diagnosis
 Electrophoresis and Ionophoresis
 Immunoassay
 Urine analysis
 (detn. of **low mol.-wt.** proteins in urine)
 IT Chromatography, column and liquid

(ion exchanger; detn. of **low mol.-wt.**
proteins in urine)

IT **Proteins**, specific or class

RL: **ANT (Analyte)**; **ANST (Analytical study)**
(**low-mol.-wt.**, detn. of **low**
mol.-wt. proteins in urine)

L40 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 1999 ACS

AN 1995:412954 HCAPLUS

DN 122:155762

TI Method of sample preparation for urine protein analysis with capillary electrophoresis

IN Liu, Cheng-Ming; Wang, Hann-Ping

PA Beckman Instruments, Inc., USA

SO PCT Int. Appl., 40 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM G01N033-483

ICS G01N033-493; G01N030-14; G01N027-447

CC **9-16** (Biochemical Methods)

Section cross-reference(s): 13, 14

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9502182	A1	19950119	WO 1994-US5631	19940518
	W: CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 659274	A1	19950628	EP 1994-921199	19940518
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	CA 2143206	AA	19960119	CA 1994-2143206	19940518
	JP 08501638	T2	19960220	JP 1994-504023	19940518

PRAI US 1993-91844 19930709

WO 1994-US5631 19940518

AB Processes are provided for pretreating body fluid (e.g., urine) compns. and subsequently analyzing the pretreated body fluid compns. for analytes of interest esp. in clin. disease **diagnosis**. Processes for pretreating the compns. include providing a size exclusion gel having a mol. wt. fractionation range or a mol. wt. exclusion such that the size exclusion gel is capable of excluding or fractionating the analytes of interest and then causing the compn. to contact the size exclusion gel to sep. the analytes from **low-mol.-wt.** compn.

components which interfere with the sepn. and anal. of the analytes of interest. Processes for analyzing pretreated compns. include electrophoretic methods such as capillary zone electrophoresis which involve the sepn. and detection of analytes of interest. Examples are given of the detn. of proteins in the urine of patients with myeloma and kidney disease.

ST urine protein detn gel **chromatog** electrophoresis; disease **diagnosis** protein detn urine pretreatment

IT **Chromatography**, gel

Diagnosis

 Disease

 Kidney, disease

 Myeloma

 Urine analysis

 (proteins detn. in urine in disease by gel **chromatog**. and capillary electrophoresis)

IT Haptoglobins

 Immunoglobulins

 Transferrins

 Albumins, analysis

Proteins, analysis

RL: **ANT (Analyte)**; **THU (Therapeutic use)**; **ANST (Analytical study)**; **BIOl (Biological study)**; **USES (Uses)**

 (proteins detn. in urine in disease by gel **chromatog**. and

capillary electrophoresis)
IT Polysaccharides, biological studies
RL: NUU (Nonbiological use, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(proteins detn. in urine in disease by gel **chromatog.** and capillary electrophoresis)

IT Immunoglobulins
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Bence-Jones, proteins detn. in urine in disease by gel **chromatog.** and capillary electrophoresis)

IT Proteins, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(metabolic disorders, proteinuria, proteins detn. in urine in disease by gel **chromatog.** and capillary electrophoresis)

IT Electrophoresis and Ionophoresis
(zone, capillary, proteins detn. in urine in disease by gel **chromatog.** and capillary electrophoresis)

IT Macroglobulins
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(.alpha.2-, proteins detn. in urine in disease by gel **chromatog.** and capillary electrophoresis)

IT Globulins, analysis
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(.gamma.-, proteins detn. in urine in disease by gel **chromatog.** and capillary electrophoresis)

IT 9035-81-8, Trypsin inhibitor 9041-92-3, .alpha.1-Antitrypsin
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(proteins detn. in urine in disease by gel **chromatog.** and capillary electrophoresis)

IT 9003-05-8, Polyacrylamide 9004-54-0, Dextran, biological studies
RL: NUU (Nonbiological use, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(proteins detn. in urine in disease by gel **chromatog.** and capillary electrophoresis)

L40 ANSWER 6 OF 14 HCPLUS COPYRIGHT 1999 ACS
AN 1993:598899 HCPLUS
DN 119:198899
TI Ultrahigh resolution matrix-assisted laser desorption/ionization of small proteins by Fourier-**transform** mass **spectrometry**
AU Castoro, John A.; Wilkins, Charles L.
CS Dep. Chem., Univ. California, Riverside, CA, 92521, USA
SO Anal. Chem. (1993), 65(19), 2621-7
CODEN: ANCHAM; ISSN: 0003-2700
DT Journal
LA English
CC 9-5 (Biochemical Methods)
AB Recent research has demonstrated that matrix-assisted laser desorption/ionization (MALDI) is feasible for Fourier-**transform** mass **spectrometric** anal. of biomols. with masses in excess of 50,000 Da. Here, the effects of electrostatic deceleration times and laser energy upon mass resoln. are reported. Optimum deceleration times for singly-charged MALDI-generated protein ions ranging in mass from 2627 to 29,000 Da are a linear function of $m_1/2$ when a 9.5-V decelerating potential is used. Furthermore, higher resoln. is obtained with laser fluences close to the threshold for MALDI. Slow metastable decay of mol. ions in the absence of comatrix is demonstrated for melittin and bovine insulin. It appears that the resoln.-enhancing effect of comatrix may result from slowing mol. ion unimol. decompr. rates sufficiently to allow IR emission to compete with metastable decay, thus providing the requisite population of long-lived ions for high mass resoln. A spectrum of bovine insulin mol. ion with mass resoln. of 30,000 is presented, together with

several spectra of lower mass proteins with mass resoln. in excess of 100,000. Detection of a doubly-charged carbonic anhydrase trimer ion with a mass of 87,000 Da is reported.

ST small protein resoln mass **spectrometry**; Fourier transform mass **spectrometry** protein

IT Mass **spectrometry**
(Fourier-transform, ultrahigh resoln. matrix-assisted laser desorption/ionization of small proteins by, electrostatic deceleration times and laser energy effect on)

IT Proteins, specific or class
RL: ANST (Analytical study)
(low-mol.-wt., matrix-assisted laser desorption/ionization of, ultrahigh resoln., by Fourier-transform mass **spectrometry**, electrostatic deceleration times and laser energy effect on)

IT 490-79-9, 2,5-Dihydroxybenzoic acid
RL: ANST (Analytical study)
(matrix contg., in ultrahigh resoln. matrix-assisted laser desorption/ionization of small proteins by Fourier-transform mass **spectrometry**)

IT 113-73-5, Gramicidin S 9001-03-0 9004-10-8, Insulin, biological studies 37231-28-0, Melittin 72711-43-4, .gamma.-MSH
RL: ANST (Analytical study)
(matrix-assisted laser desorption/ionization of, ultrahigh resoln., by Fourier-transform mass **spectrometry**, electrostatic deceleration times and laser energy effect on)

L40 ANSWER 7 OF 14 HCPLUS COPYRIGHT 1999 ACS
AN 1993:208709 HCPLUS
DN 118:208709
TI Profiling of endogenous brain peptides and small proteins: methodology, computer-assisted analysis, and application to aging and lesion models
AU Slemon, J. Randall; Flood, Dorothy G.
CS Med. Cent., Univ. Rochester, Rochester, NY, 14642, USA
SO Neurobiol. Aging (1992), 13(6), 649-60
CODEN: NEAGDO; ISSN: 0197-4580
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 13, 14
AB Significant advances in the technol. for the isolation of peptides and small proteins have permitted their identification as biol. markers and enhanced the study of the posttranslational life of proteins. The protocol described here examd. large nos. of **tissue**-derived peptides and small proteins, extd. in low pH and boiled so that proteolysis was interrupted. These were then fractionated batchwise by using size exclusion and ion-exchange **chromatog**. Profiles of species in the peptide pools were then generated by reversed-phase HPLC. The HPLC profiles were evaluated with **chromatog**. anal. software to identify and quantify peptide peaks and with data compilation programs to sort this information into spreadsheets for comparison of profiles among groups. The effects of postmortem delay or age were examd. by using rodent brain. Postmortem delay produced limited alterations to the profiles, but the effect of age was more pronounced. Many changes were apparent until 12 mo, after which the profiles became more const. Addnl. peptide profiling of the hippocampus demonstrated changes in peptide content as a function of perforant pathway ablation. The major strengths of HPLC-mediated peptide profiling are that it lends itself to automation and can be used to detect changes in peptides and small proteins among exptl. groups or subjects without any prior assumptions concerning which ones might be altered.
ST brain peptide protein profiling **chromatog** computer; HPLC peptide profiling brain; liq **chromatog** peptide profiling brain
IT Computer application
(in peptide profiling in brain of humans and lab. animals)
IT **Chromatography**, gel

IT (of peptides and small proteins, of brain of humans and lab. animals)
 Development, mammalian
 Senescence
 (peptide profiles in brain in relation to)

IT Brain, composition
 (peptides of, profiling of, **chromatog.** and computer methods for, in humans and lab. animals)

IT **Peptides, analysis**
 RL: **ANST (Analytical study)**
 (profiling of, of brain of humans and lab. animals, **chromatog.** and computer methods for)

IT **Chromatography, column and liquid**
 (high-performance reversed-phase, of peptides and small proteins, of brain of humans and lab. animals)

IT **Chromatography, column and liquid**
 (ion-exchange, of peptides and small proteins, of brain of humans and lab. animals)

IT **Proteins, specific or class**
 RL: **ANST (Analytical study)**
 (low-mol.-wt., profiling of, of brain of humans and lab. animals, **chromatog.** and computer methods for)

IT Brain, disease
 (perforant pathway, ablation, peptide profiles in brain response to, **chromatog.** in study of)

L40 ANSWER 8 OF 14 HCPLUS COPYRIGHT 1999 ACS
 AN 1991:578432 HCPLUS
 DN 115:178432
 TI Quantitation of type I, III, and V collagens in human **tissue** samples by high-performance liquid **chromatography** of selected cyanogen bromide peptides
 AU Miller, Edward J.; Furuto, Donald K.; Narkates, Annie J.
 CS Dep. Biochem., Univ. Alabama, Birmingham, AL, 35294, USA
 SO Anal. Biochem. (1991), 196(1), 54-60
 CODEN: ANBCA2; ISSN: 0003-2697
 DT Journal
 LA English
 CC 9-3 (Biochemical Methods)
 Section cross-reference(s): 13
 AB A method to det. the proportions of the major fiber-forming collagens (types I, III, and V) in noncartilaginous human **tissues** is presented. The procedure relies on direct solubilization of **tissue** collagen as CNBr peptides. The peptides are subjected to cation-exchange **chromatog.** followed by gel-permeation **chromatog.** in a manner consistent with the rapid resoln. and quantitation of relatively low-mol.-wt. marker peptides for each collagen. The marker peptides utilized for type I, III, and V collagens are .alpha.I(I)-CB2, .alpha.I(III)-CB2, and .alpha.I(V)-CB1, resp. Quantitation of the peptides is attained as a function of UV absorbance during gel-permeation **chromatog.** The nature of the marker peptides, the use of HPLC techniques, and quantitation of the peptides by UV absorbance renders the method suitably rapid, sensitive, and accurate for routine evaluations of collagen compn. The utility of the method is illustrated in the presentation of analyses on specimens of placental membranes and blood vessel walls.
 ST cation exchange HPLC collagen **tissue**; gel **chromatog.** collagen animal **tissue**; liq **chromatog.** collagen animal **tissue**
 IT Placenta
 (collagens detn. in human, by HPLC of selected cyanogen bromide peptides)
 IT Blood vessel, composition
 (collagens detn. in walls of human, by HPLC of selected cyanogen bromide peptides)
 IT Organ
 (collagens detn. in, of humans by HPLC of selected cyanogen bromide

peptides)
 IT Peptides, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (detn. of, from cyanogen bromide cleavage of collagens, by HPLC)
 IT Spectrochemical analysis
 (UV, for peptides, for collagens detn. in human tissues)
 IT Artery, composition
 (aorta, collagens detn. in human, by HPLC of selected cyanogen bromide peptides)
 IT Artery, composition
 (coronary, left circumflex, collagens detn. in human, by HPLC of selected cyanogen bromide peptides)
 IT Chromatography, gel
 (high-performance, of peptides, for collagens detn. in human tissue samples)
 IT Chromatography, column and liquid
 (high-performance, cation-exchange, of peptides, for collagens detn. in human tissue samples)
 IT Collagens, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (type I, detn. of, in human tissue samples by HPLC of selected cyanogen bromide peptides)
 IT Collagens, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (type III, detn. of, in human tissue samples by HPLC of selected cyanogen bromide peptides)
 IT Collagens, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (type V, detn. of, in human tissue samples by HPLC of selected cyanogen bromide peptides)
 IT 136449-87-1
 RL: ANST (Analytical study)
 (as marker peptide, for collagen I detn. in human tissue samples)
 IT 136431-31-7
 RL: ANST (Analytical study)
 (as marker peptide, for collagen III detn. in human tissue samples)
 IT 136460-93-0, 147-200-Collagen (human type V .alpha.1-chain protein moiety)
 RL: ANST (Analytical study)
 (as marker peptide, for collagen V detn. in human tissue samples)
 IT 506-68-3, Cyanogen bromide
 RL: ANST (Analytical study)
 (collagens cleavage by, peptides from, detn. of, by HPLC)

L40 ANSWER 9 OF 14 HCPLUS COPYRIGHT 1999 ACS
 AN 1990:213330 HCPLUS
 DN 112:213330
 TI Use of gel filtration in the preparation of biological fluids for magnetic resonance spectroscopy
 AU Hoffman, David W.; Venters, Ronald A.; Shedd, Suzanne F.; Spicer, Leonard D.
 CS Med. Cent., Duke Univ., Durham, NC, 27710, USA
 SO Magn. Reson. Med. (1990), 13(3), 507-13
 CODEN: MRMEEN; ISSN: 0740-3194
 DT Journal
 LA English
 CC 9-5 (Biochemical Methods)
 AB Anal. of biol. fluids by proton magnetic resonance spectroscopy (MRS) is often complicated by dynamic range problems created from the large water resonance. Gel filtration chromatog. is found to be a simple and nondestructive method for exchanging D₂O for H₂O and for removing low-mol.-wt. mols. from both plasma and urine, significantly improving subsequent 1- and 2-dimensional MRS spectra.
 ST gel chromatog biol fluid NMR spectrometry

IT **Body fluid**
 (anal. of, by NMR **spectrometry**, after sample prepn. by gel filtration)
 IT Blood analysis
 Urine analysis
 (by NMR **spectrometry**, after sample prepn. by gel filtration)
 IT Lipoproteins
 Amino acids, analysis
 Carbohydrates and Sugars, analysis
 Glycerides, analysis
 Lipids, analysis
 Phospholipids, analysis
 Proteins, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (detection of, in blood plasma and urine by NMR **spectrometry**
 after sample purifn. by gel filtration)
 IT Nuclear magnetic resonance **spectrometry**
 (of biol. fluids, after sample prepn. by gel **chromatog.**)
 IT **Chromatography, gel**
 (of biol. fluids, for NMR spectrochem. anal.)
 IT Spectrochemical analysis
 (NMR, of biol. fluids, after sample prepn. by gel **chromatog.**)
 IT 50-21-5, analysis 60-00-4, EDTA, analysis 60-00-4D, EDTA, metal complexes
 RL: ANT (Analyte); ANST (Analytical study)
 (detection of, in blood plasma and urine by NMR **spectrometry**
 after sample purifn. by gel filtration)

L40 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 1999 ACS
 AN 1987:152531 HCAPLUS
 DN 106:152531
 TI Fractionations of soluble proteins in human lenses with senile cataract by polyacrylamide gel electrophoresis
 AU Kim, Bong Cheol; Choe, Joon Kiu
 CS Sch. Med., Hanyang Univ., Seoul, S. Korea
 SO Hanyang Uidae Haksulchi (1986), 6(2), 13-28
 CODEN: HIHAD3
 DT Journal
 LA Korean
 CC 9-15 (Biochemical Methods)
 Section cross-reference(s): 14
 AB To characterize the proteins and polypeptides in human lenses with senile cataract, sol. proteins in the cataractous lenses were isolated and fractionated by a DEAE-cellulose column **chromatog.**, native PAGE and SDS-PAGE, and the results were compared with those of normal human lenses. As compared with those in normal humans lenses, sol. protein contents were significantly decreased by 22% and insol. protein contents were markedly increased by approx. 3-fold in lenses with senile cataract. Sol. proteins in both normal and the cataractous lenses were sepd. into 7 peaks, resp. Protein peaks Vb and VII eluted in the cataractous lenses were not found in normal human lenses, suggesting that the 2 peaks may be responsible, in part, for pathogenesis of senile cataract. SDS-PAGE of the cataractous lens protein peaks revealed that protein peaks I, II, and III diminished in lenses with senile cataract were composed of low mol. wt. (LMW) polypeptides (15,000-28,000) and relatively large amts. of high mol. wt. (HMW) polypeptides (45,000 or above), and protein peaks Va and Vb increased in lenses with senile cataract were made up of LMW polypeptide (15,000-21,000) and relatively large amt. of HMW polypeptides. These results indicated that the LMW and HMW polypeptides in protein peaks I, II, and III appeared to be assocd. to form protein mols. in peak Va and Vb when normal human lenses were transformed into senile cataract. It could be suggested that these processes might play an important role in pathogenesis and maintenance of senile cataract. Protein and polypeptide bands sepd. by native-PAGE and SDS-PAGE appeared to be distinctive in normal lenses, but not distinctive and diffuse in the cataractous lenses. These results

indicated that, differing from those of normal lenses, polypeptides in the cataractous lenses were linked not only with the disulfide (SS) linkages, but also with non-SS, covalent linkages. Non-SS covalent changes in sol. protein mols. of lenses have been suggested to play a part in lens opacification.

ST sol protein eye lens fractionation; senile cataract protein PAGE; column chromatog protein cataract lens
 IT **Chromatography**, column and liquid
 (of sol. proteins, in human lenses with senile cataract)
 IT **Proteins, analysis**
 RL: **ANST (Analytical study)**
 (sol., fractionation of, in human lenses with senile cataract by PAGE)
 IT Electrophoresis and Ionophoresis
 (gel, of sol. proteins, in human lenses with senile cataract, on polyacrylamide)
 IT Eye, composition
 (lens, sol. proteins in, fractionation of, by PAGE, of humans)
 IT Cataract
 (senile, sol. proteins in eye lenses of humans with)

L40 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 1999 ACS

AN 1986:421315 HCAPLUS

DN 105:21315

TI Modified siliceous supports

IN Hou, Kenneth C.; Liao, Tung Ping D.

PA AMF Inc., USA

SO Eur. Pat. Appl., 75 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM B01J020-32

 ICS B01D015-04; B01J039-06

CC 9-3 (Biochemical Methods)

FAN.CNT 7

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 172579	A2	19860226	EP 1985-110571	19850822
	EP 172579	A3	19870107		
	EP 172579	B1	19921119		
	R: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
	US 4724207	A	19880209	US 1984-643613	19840822
	JP 61166861	A2	19860728	JP 1985-178490	19850813
	AT 82525	E	19921215	AT 1985-110571	19850822

PRAI US 1984-643613 19840822
 US 1983-466114 19830214
 US 1984-576448 19840202
 EP 1985-110571 19850822

AB A modified silica material is described for the **chromatog.** sepn. and purifn. of biol. substances. The silica is covalently bonded to a synthetic polymer made from (a) a polymerizable compd. having a chem. group capable of covalent coupling with silica, and (b) .gtoreq.1 polymerizable compds. contg. an ionizable chem. group, a group capable of **transformation** to an ionizable chem. group, a group capable of covalent coupling to an affinity ligand or a biol. active mol., or a hydrophobic chem. group. For example, diethylaminoethylmethacrylate and glycidylmethacrylate were mixed in a closed reactor contg. H₂O. N₂ was bubbled to remove the air and an aq. mixt. of catalysts [(NH₄)₂S₂O₈, Na₂S₂O₃] was added to the reactor. The reactor temp. was maintained at 40.degree. for 2 min. The excess catalyst and a **low-mol** .-wt. copolymer formed were added to silica particles. The pH of the reactor was reused to 9.0 and the temp. to 90.degree.-95.degree. for 1 h. The modified silica particles were filtered, washed, and returned to a reactor contg. MeC(:O)Et and H₂O. 1,6-Dichlorohexane and kI were added to the reactor and the reaction mixt. was refluxed overnight. The resulting product was filtered, washed, and acidified with HCl to pH .aprx.5. This crosslinked, quaternized polymer bound to silica particles

- had a 3-fold higher adsorption capacity for bovine serum albumin than silica prepd. with a silane coupling agent and 12-fold higher than untreated silica.
- ST silica modified **chromatog** stationary phase; polymer linked silica **chromatog** support
- IT Albumins, blood serum
 RL: ANST (Analytical study)
 (binding of, by polymer silica deriv., column **chromatog**. in relation to)
- IT Kieselguhr
 Mica-group minerals, compounds
 Serpentine-group minerals
 Silica gel, compounds
 Smectite-group minerals
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (polymer derivs., prepn. of, as stationary phases for column **chromatog**.)
- IT Agglutinins and Lectins
 Antibodies
 Antigens
 Carbohydrates and Sugars, compounds
 Enzymes
 Ligands
 Nucleic acids
Proteins
 RL: ANST (Analytical study)
 (polymer silica deriv. bound to, as stationary phase for affinity **chromatog**.)
- IT Pulp, cellulose
 (polymer silica deriv. combined with, as stationary phase for column **chromatog**.)
- IT Polymers, compounds
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (silica derivs., prepn. of, as stationary phases for column **chromatog**.)
- IT **Chromatography**, column and liquid
 (stationary phases for, polymer silica derivs. as)
- IT **Chromatography**, column and liquid
 (affinity, stationary phases for, polymer silica derivs. as)
- IT Glass, oxide
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (porous, polymer derivs., prepn. of, as stationary phases for column **chromatog**.)
- IT Globulins
 RL: ANST (Analytical study)
 (.gamma.-, binding of, by polymer silica deriv., column **chromatog**. in relation to)
- IT 7440-70-2, biological studies
 RL: BIOL (Biological study)
 (binding of, by polymer silica deriv., column **chromatog**. in relation to)
- IT 38742-80-2D, silica derivs.
 RL: RCT (Reactant)
 (crosslinking of, for stationary phases for column **chromatog**.)
- IT 2163-00-0
 RL: ANST (Analytical study)
 (diethylaminoethyl methacrylate-glycidyl methacrylate copolymer crosslinking with)
- IT 38742-80-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and reaction with silica)
- IT 1318-00-9P 1318-74-7P, preparation 1318-93-0P, preparation 7631-86-9DP, polymer derivs. 12269-78-2P 14807-96-6DP, polymer derivs. 25067-05-4DP, silica derivs., sulfonylated
 RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of, as stationary phases for column **chromatog.**)

L40 ANSWER 12 OF 14 HCPLUS COPYRIGHT 1999 ACS
 AN 1985:484355 HCPLUS
 DN 103:84355
 TI Fast protein liquid **chromatography** scale-up procedures for the preparation of **low-molecular-weight** proteins from urine
 AU Cooper, E. H.; Turner, R.; Webb, J. R.; Lindblom, H.; Fagerstam, L.
 CS Unit Cancer Res., Univ. Leeds, Leeds, LS2 9JT, UK
 SO J. Chromatogr. (1985), 327, 269-77
 CODEN: JOCRAM; ISSN: 0021-9673
 DT Journal
 LA English
 CC 9-3 (Biochemical Methods)
 AB A system for the rapid isolation of **low-mol.-wt.** proteins from urine has been devised, and illustrated by .alpha.1-microglobulin, .beta.2-microglobulin, retinol-binding protein, lysozyme, and monoclonal light chains. Urine proteins from patients with tubular dysfunction were concd., either by ultrafiltration or (NH₄)₂SO₄ ptn. This was followed by gel **chromatog.** on Sephadex G 50. The appropriate fractions were then sepd. by **chromatog.** on Pharmacia monobead columns. A Mono Q strong anion exchanger was used for .beta.2-microglobulin, retinol-binding protein, .alpha.1-microglobulin, and free monoclonal light chains. Lysozyme was sepd. on a Mono S cation exchanger. The **chromatog.** was 1st optimized HR 5/5 columns and then scaled up to HR 16/10 columns.
 ST protein liq **chromatog.**; urine protein prepn
 IT **Chromatography**, column and liquid
 (fast, of **low-mol.-wt.** proteins of human urine, scale-up procedures for)
 IT **Urine**
 (**low-mol.-wt.** proteins purifn. from, of human by fast liq. **chromatog.**, scale-up procedures for)
 IT **Chromatography**, gel
 (of **low-mol.-wt.** proteins, from human urine)
 IT **Chromatography**, column and liquid
 (anion-exchange, of **low-mol.-wt.** proteins of human urine, scale-up procedures for)
 IT **Chromatography**, column and liquid
 (cation-exchange, of **low-mol.-wt.** proteins of human urine, scale-up procedures for)
 IT **Proteins**
 RL: PUR (Purification or recovery); PREP (Preparation)
 (**low-mol.-wt.**, purifn. of, from human urine by fast liq. **chromatog.**, scale-up procedures for)
 IT Immunoglobulins
 RL: PRP (Properties)
 (monoclonal, light chains of, purifn. of, from human urine by fast liq. **chromatog.**, scale-up procedures for)
 IT **Proteins**
 RL: PUR (Purification or recovery); PREP (Preparation)
 (retinol-binding, purifn. of, from human urine by fast liq. **chromatog.**, scale-up procedures for)
 IT Microglobulins
 RL: PUR (Purification or recovery); PREP (Preparation)
 (.alpha.1-, purifn. of, from human urine by fast liq. **chromatog.**, scale-up procedures for)
 IT Microglobulins
 RL: PUR (Purification or recovery); PREP (Preparation)
 (.beta.2-, purifn. of, from human urine by fast liq. **chromatog.**, scale-up procedures for)
 IT 9001-63-2P
 RL: PUR (Purification or recovery); PREP (Preparation)
 (purifn. of, from human urine by fast liq. **chromatog.**,

scale-up procedures for)

L40 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 1999 ACS
 AN 1983:194375 HCAPLUS
 DN 98:194375
 TI Reverse phase high-performance liquid **chromatography** for protein purification: insulin-like growth factors, calcium binding proteins and metallothioneins
 AU Wilson, Kenneth J.; Berchtold, Martin W.; Zumstein, Peter; Klauser, Stephan; Hughes, Graham J.
 CS Biochem. Inst., Univ. Zurich, Zurich, CH-8028, Switz.
 SO Methods Protein Sequence Anal., [Proc. Int. Conf.], 4th (1982), Meeting Date 1981, 401-8. Editor(s): Elzinga, Marshall. Publisher: Humana, Clifton, N. J.
 CODEN: 49KBAY
 DT Conference
 LA English
 CC 9-3 (Biochemical Methods)
 AB Human serum insulin-like growth factors, rat brain Ca²⁺-binding proteins, and rabbit liver metallothioneins were purified by microprocessor-controlled reversed-phase high-performance liq. **chromatog.** (HPLC) with UV detection, following preliminary purifn., including gel filtration. HPLC was carried out on LiChrosorb RP-18 or Aquapore RP 300 and elution was with a gradient formed between 0.1% H₃PO₄-10 mM NaClO₄ (buffer A) and 60% MeCN (contg. 6% PrOH for Ca-binding proteins). For metallothionein purifn., the eluent was buffer A, Tris, pH 7.5, and 60% MeCN in buffer A. Two of the peaks in rat brain ext. were identified as calmodulin and parvalbumin and were shown to be homogeneous by 2-dimensional gel electrophoresis. The method allows the purifn. of relatively low-mol.-wt. proteins in active form.
 ST protein purifn high performance **chromatog**; liq **chromatog** protein purifn; insulin like growth factor purifn; metallothionein purifn high performance **chromatog**; calcium binding protein metallothionein purifn; reversed phase **chromatog** protein purifn
 IT Brain, composition
 (calcium-binding proteins of, purifn. of, by reversed-phase high-performance liq. **chromatog.**)
 IT Calmodulins
 Parvalbumins
 RL: ANT (Analyte); ANST (Analytical study)
 (detection of, in calcium-binding proteins by reversed-phase high-performance liq. **chromatog.**)
 IT Blood
 (insulin-like growth factor of, purifn. of, of humans by reversed-phase high-performance liq. **chromatog.**)
 IT Liver, composition
 (metallothioneins of, purifn. of, by reversed-phase high-performance liq. **chromatog.**)
 IT Metallothioneins
 RL: PUR (Purification or recovery); PREP (Preparation)
 (purifn. of, in liver by reversed-phase high-performance liq. **chromatog.**)
 IT Proteins
 RL: PUR (Purification or recovery); PREP (Preparation)
 (calcium-binding, purifn. of, in brain by reversed-phase high-performance liq. **chromatog.**)
 IT Chromatography, column and liquid
 (high-performance, reversed-phase, of proteins)
 IT 61912-98-9P
 RL: PUR (Purification or recovery); PREP (Preparation)
 (purifn. of, in blood serum of humans by reversed-phase high-performance liq. **chromatog.**)

L40 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 1999 ACS
 AN 1979:553708 HCAPLUS

DN 91:153708
 TI The application of gel filtration and specific analyses of urinary carbohydrate and protein material to the **diagnosis** of metabolic disorders
 AU White, C. A.; Kennedy, J. F.
 CS Inst. Ment. Subnorm., Lea Castle Hosp., Kidderminster/Worcs., DY10 3PP, Engl.
 SO Clin. Chim. Acta (1979), 95(2), 381-9
 CODEN: CCATAR; ISSN: 0009-8981
 DT Journal
 LA English
 CC 9-2 (Biochemical Methods)
 Section cross-reference(s): 14
 AB A gel filtration method developed for urinary carbohydrate and proteinaceous material based on Bio-Gel P 2 cross-linked polyacrylamide gel has been coupled to specific continuous automated analyses for neutral and acidic carbohydrate and protein. The multichannel anal. system has been applied to urine from normal subjects and from known cases of genetic hyperglycosaminoglycanuria (mucopolysaccharidosis) to analyze not only the nondialyzable, high-mol.-wt. material but also the **low-mol.-wt.** material which comprises >90% of urine solutes in many cases. Urine from affected patients was easily distinguished from that from normal subjects and the method also differentiated between various syndromes. For the Morquio syndrome with mucopolysacchariduria and Scheie syndrome, the ratio of acidic-to-neutral carbohydrate (carbazole-to-cysteine ratio) in the high-mol.-wt. material was the lowest (<0.6) whereas for the Hunter syndrome the value was >2.0, with values for Hunter and Sanfilippo syndromes being intermediate. The ratio of high-to-low mol. wt. material for the Morquio syndrome with mucopolysacchariduria in the case of the borate-carbazole assay was lower (<0.2) but in the case of the L-cysteine-H₂SO₄ assay was higher (>0.6) than values obtained for the other syndromes. There was evidence for a division within the Sanfilippo syndrome using this mol. size ratio for the L-cysteine-H₂SO₄ assay, some with values >0.5 and some with values <0.3. In urine from cases of Morquio syndrome with mucopolysacchariduria there was also evidence of large amts. of intermediate mol. wt. material. The application of this method to studies of other disorders of inherited metab. is equally possible and is discussed.
 ST gel chromatog carbohydrate protein; urine carbohydrate protein detn; mucopolysaccharidosis urine carbohydrate protein; hyperglycosaminoglycanuria carbohydrate protein urine
 IT Urine analysis (carbohydrates and protein detn. in, by gel filtration in mucopolysaccharidosis)
 IT Mucopolysaccharidosis (carbohydrates and proteins detn. in urine in)
 IT Carbohydrates, analysis
Proteins
 RL: ANT (Analyte); ANST (Analytical study)
 (detn. of, in urine by gel filtration in mucopolysaccharidosis)

=> d all tot 141

L41 ANSWER 1 OF 18 HCPLUS COPYRIGHT 1999 ACS
 AN 1999:484041 HCPLUS
 DN 131:267138
 TI Application of a peptide bank from porcine brain in isolation of regulatory peptides
 AU Seiler, Petra; Standker, Ludger; Mark, Silke; Hahn, Wilfried;
 Forssmann, Wolf-Georg; Meyer, Markus
 CS Lower Saxony Institute for Peptide Research, Hannover, 30625, Germany
 SO J. Chromatogr., A (1999), 852(1), 273-283
 CODEN: JCRAEY; ISSN: 0021-9673
 PB Elsevier Science B.V.
 DT Journal

*& applications
only*

LA English
 CC 2-1 (Mammalian Hormones)
 Section cross-reference(s): 9
 AB Over the past years, the introduction of biol. assay systems, random peptide sequencing and orphan receptor screening has led to the isolation and identification of new regulatory peptides with potential clin. impact. We have developed a method for sepg. peptides into about 300 fractions from large amts. of porcine brain tissue. The prepn. of this peptide bank consists of three steps including ultrafiltration followed by cation-exchange sepn. and reversed-phase chromatog. These fractions represent the peptide bank with desalted and lyophilized peptides from brain tissue. Mol. masses of the peptides in the fractions are detd. by matrix-assisted laser desorption ionization MS and a mass data bank is subsequently generated. For systematic anal. of the peptides, a subsequent two-step purifn. procedure is followed by Edman sequencing resulting in the identification of different peptides. A survival assay with a neuronal cell line revealing the stimulatory and inhibitory activities is applied as a model to test the 300 fractions. This primary screen indicates that the biol. activities of the extd. peptides are easily characterized and, moreover, can be related to the biochem. entities. We conclude that the established peptide bank is an efficient and useful tool for the isolation of regulatory brain peptides applying different purifn. strategies.
 ST peptide bank porcine brain regulatory peptide isolation
 IT Brain
 Swine
 (application of a peptide bank from porcine brain in isolation of regulatory peptides)
 IT **Peptides, preparation**
 RL: **PUR (Purification or recovery); PREP (Preparation)**
 (application of a peptide bank from porcine brain in isolation of regulatory peptides)
 IT Matrix-assisted laser desorption ionization mass spectrometry
 (for mol. mass detn.; prepn. of a peptide bank from porcine brain using ultrafiltration followed by cation-exchange sepn. and reversed-phase chromatog.)
 IT Cation exchange
 Reversed phase chromatography
 Ultrafiltration
 (prepn. of a peptide bank from porcine brain using ultrafiltration followed by cation-exchange sepn. and reversed-phase chromatog.)

L41 ANSWER 2 OF 18 HCPLUS COPYRIGHT 1999 ACS
 AN 1999:8785 HCPLUS
 DN 130:165123
 TI Liquid **chromatography** and electrospray mass **spectrometric** mapping of peptides from human plasma filtrate
 AU Raida, Manfred; Schulz-Knappe, Peter; Heine, Gabriele;
Forssmann, Wolf-Georg
 CS Lower Saxony Institute for Peptide Research, Hannover, D-30625, Germany
 SO J. Am. Soc. Mass Spectrom. (1999), 10(1), 45-54
 CODEN: JAMSEF; ISSN: 1044-0305
 PB Elsevier Science Inc.
 DT Journal
 LA English
 CC 9-16 (Biochemical Methods)
 AB We present a multidimensional approach to map the compn. of complex peptide mixts. obtained as crude ext. from biol. liqs. by (1) cation exchange **chromatog.** and (2) subsequent microbore reversed-phase liq. **chromatog.** and electrospray mass **spectrometry** coupling (LC-MS). Human hemofiltrate is an equiv. to blood and is used to obtain peptide material in large quantities from patients with chronic renal failure. The upper exclusion limit of the filtration membranes used results in a protein-free filtrate contg. peptides in a range up to 20 ku. Using this unique peptide source, several thousand peptides were detected and an LC-MS data base of circulating human peptides was created. The

search for known peptides by their mol. mass is a reliable method to guide peptide purifn.

ST liq **chromatog** electrospray mass **spectrometric** mapping;
peptide plasma

IT Reversed phase liquid **chromatography**
(Microbore; liq. **chromatog.** and electrospray mass
spectrometric mapping of peptides from human plasma filtrate)

IT Cation exchange **chromatography**
Chronic renal failure
Electrospray ionization mass **spectrometry**
Liquid **chromatography**
Liquid **chromatography-mass spectrometry**
Membranes (nonbiological)
Purification
(liq. **chromatog.** and electrospray mass **spectrometric**
mapping of peptides from human plasma filtrate)

IT Peptides, analysis
RL: ANT (Analyte); ANST (Analytical study)
(liq. **chromatog.** and electrospray mass **spectrometric**
mapping of peptides from human plasma filtrate)

IT Mass
(molar; liq. **chromatog.** and electrospray mass
spectrometric mapping of peptides from human plasma filtrate)

L41 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:597926 HCAPLUS
DN 129:341399
TI Peptide Trapping from human blood
AU Schulz-Knappe, Peter; Raida, Manfred; Hess, Rudiger; Kleemeier,
Burkhard; Richter, Rudolf; Schrader, Michael; Standker, Ludger;
Forssmann, Wolf-Georg
CS Lower Saxony Institute for Peptide Research (IPF), Hannover, D-30625,
Germany
SO Pept. 1996, Proc. Eur. Pept. Symp., 24th (1998), Meeting Date 1996,
795-796. Editor(s): Ramage, Robert; Epton, Roger. Publisher: Mayflower
Scientific, Kingswinford, UK.
CODEN: 66RCA5
DT Conference
LA English
CC 9-16 (Biochemical Methods)
Section cross-reference(s): 14
AB Peptide Trapping is multidimensional peptide anal. that combines
chromatog. methods, mass spectrometry, the systematic isolation and
structural detn. of human peptides from blood. The Human Circulating
Peptides Database is generated from the obtained data.
ST Peptide Trapping blood database; Human Circulating Peptides Database
IT Chromatography
Databases
Mass spectrometry
(peptide trapping from human blood)
IT Blood **proteins**
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(peptide trapping from human blood)

L41 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:21559 HCAPLUS
DN 128:59181
TI Analysis of heart disease specific proteins using physical and chemical
methods, especially HPLC and mass **spectrometry** for the direct
diagnosis of point mutations caused by genetic or pathogenic factors.
IN Forssmann, Wolf-Georg; Raida, Manfred; Brenner, Bernhard; Nier,
Volker
PA Forssmann, Wolf-Georg, Germany
SO Ger. Offen., 4 pp.
CODEN: GWXXBX

DT Patent
 LA German
 IC ICM C12Q001-24
 ICS G01N030-72; G01N021-00
 CC 9-16 (Biochemical Methods)
 Section cross-reference(s): 14
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19624802	A1	19980102	DE 1996-19624802	19960621
	WO 9749993	A1	19971231	WO 1997-EP3241	19970620
	W: JP, US			RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE	
	EP 914615	A1	19990512	EP 1997-929238	19970620
PRAI	DE 1996-19624802	19960621		R: AT, CH, DE, FR, GB, IT, LI	
	WO 1997-EP3241	19970620			
AB	The invention concerns a quick medical diagnosis based on the quant. and qual. anal. of the proteins to detect exchanges of amino acids that demonstrate pathogenic or non-pathogenic effects on the organism. Proteins are isolated from biopsy samples, e.g. myosins from heart muscle, and are digested with endoproteinase, followed by sepn. of the peptides on a HPLC column. Fractions are identified either by a coupled mass spectrometer or the fractions are collected and analyzed subsequently by a MALDI mass spectrometer or by capillary electrophoresis. The comparison of protein samples of the healthy subjects and those of the ill ones offers a tool to identify mutations and to quantify changes from wild type to mutant.				
ST	diagnosis point mutation myosin heart disease; protein HPLC mass spectrometry				
IT	Capillary electrophoresis Diagnosis HPLC Heart diseases Liquid chromatography-mass spectrometry Mass spectrometry Matrix-assisted laser desorption ionization mass spectrometry Point mutation (anal. of heart disease specific proteins using phys. and chem. methods, esp. HPLC and mass spectrometry for direct diagnosis of point mutations caused by genetic or pathogenic factors)				
IT	Amino acids, analysis Peptides, analysis Proteins (general), analysis RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (anal. of heart disease specific proteins using phys. and chem. methods, esp. HPLC and mass spectrometry for direct diagnosis of point mutations caused by genetic or pathogenic factors)				
IT	.beta.-Myosins RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (.beta.-MHC; anal. of heart disease specific proteins using phys. and chem. methods, esp. HPLC and mass spectrometry for direct diagnosis of point mutations caused by genetic or pathogenic factors)				
IT	9001-92-7, Endoproteinase RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (anal. of heart disease specific proteins using phys. and chem. methods, esp. HPLC and mass spectrometry for direct diagnosis of point mutations caused by genetic or pathogenic factors)				
L41	ANSWER 5 OF 18 HCPLUS COPYRIGHT 1999 ACS				
AN	1997:452608 HCPLUS				
DN	127:173432				
TI	Mapping of peptides and protein fragments in human urine using liquid chromatography-mass spectrometry				

AU Heine, Gabriele; Raida, Manfred; **Forssmann, Wolf-Georg**
 CS Lower Saxony Institute for Peptide Research, Feodor-Lynen-Strasse 31,
 Hannover, D-30625, Germany
 SO J. Chromatogr., A (1997), 776(1), 117-124
 CODEN: JCRAEY; ISSN: 0021-9673
 PB Elsevier
 DT Journal
 LA English
 CC 9-16 (Biochemical Methods)
 Section cross-reference(s): 2, 13, 80
 AB A method for the mapping of peptide mixts., heterogeneous with respect to
 the concn. and the size of individual peptides, was established with the
 aim of obtaining a comprehensive anal. of human urine peptides. Peptide
 extn. and fractionation were optimized to achieve a 2-step anal., using
 reversed-phase and ion-exchange **chromatog.** Highly sensitive
 detection of peptides was performed by coupling microbore HPLC with
 electrospray mass **spectrometry** (ESI-MS). Peptides such as
 urodilatin, angiotensin, and fragments of psoriasisin, granulin, and
 uromodulin were isolated and sequenced. The procedure presented here is a
 tool for the anal. of complex peptide mixts. from human urine.
 ST urine peptide protein mapping HPLC **spectrometry**; liq
 chromatog peptide mapping urine; mass **spectrometry**
 peptide mapping urine; hormone peptide mapping urine GC MS
 IT **Proteins** (specific **proteins** and subclasses)
 RL: **ANT (Analyte); ANST (Analytical study)**
 (granulins; peptides and protein fragments mapping in human urine by
 LC-MS)
 IT Hormones (animal), analysis
 RL: **ANT (Analyte); ANST (Analytical study)**
 (peptide; peptides and protein fragments mapping in human urine by
 LC-MS)
 IT Electrospray ionization mass **spectrometry**
 Extraction
 Ion exchange **chromatography**
 Liquid **chromatography-mass spectrometry**
 Protein sequence analysis
 Reversed phase HPLC
 Urine analysis
 (peptides and protein fragments mapping in human urine by LC-MS)
 IT **Peptides, analysis**
 Proteins (general), analysis
 Serum albumin
 Tamm-Horsfall glycoprotein
 .alpha.1-Microglobulins
 RL: **ANT (Analyte); ANST (Analytical study)**
 (peptides and protein fragments mapping in human urine by LC-MS)
 IT **Proteins (specific proteins and subclasses)**
 RL: **ANT (Analyte); ANST (Analytical study)**
 (psoriasisin; peptides and protein fragments mapping in human urine by
 LC-MS)
 IT 9001-99-4, RNase
 RL: **ANT (Analyte); ANST (Analytical study)**
 (pancreatic; peptides and protein fragments mapping in human urine by
 LC-MS)
 IT 1407-47-2, Angiotensin 115966-23-9, Urodilatin
 RL: **ANT (Analyte); ANST (Analytical study)**
 (peptides and protein fragments mapping in human urine by LC-MS)

 L41 ANSWER 6 OF 18 HCPLUS COPYRIGHT 1999 ACS
 AN 1997:189925 HCPLUS
 DN 126:182307
 TI Guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of
 GCAP-II and nucleic acid for disease diagnosis and treatment
 IN **Forssmann, Wolf-Georg**
 PA Forssmann, Wolf-Georg, Germany
 SO Ger. Offen., 15 pp.

DT CODEN: GWXXBX
 LA Patent
 German
 IC ICM C07K014-435
 ICS C12N015-11; C12N015-12; C12N015-63; C07K001-16; A61K038-17;
 A61K048-00
 ICA G01N033-53; C12Q001-68
 CC 3-3 (Biochemical Genetics)
 Section cross-reference(s): 1, 2, 9
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19528544	A1	19970206	DE 1995-19528544	19950803
	WO 9706258	A2	19970220	WO 1996-EP3429	19960803
	W: AU, CA, JP, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9667892	A1	19970305	AU 1996-67892	19960803
PRAI	DE 1995-19528544	19950803			
	WO 1996-EP3429	19960803			
AB	Guanylate cyclase-activating peptide II (GCAP-II); human cDNA for prepro-GCAP-II; method of purifying GCAP-II from human hemofiltrate or prep. GCAP-II with recombinant cells; and use of GCAP-II or derivs. for treatment of gastrointestinal, urogenital, respiratory tract, cardiovascular, and nervous system diseases are disclosed. GCAP-II was purified from human hemofiltrate and its sequence was detd. The GCAP-II peptide was chem. synthesized and tested for biol. activity. The cDNA for human prepro-GCAP-II was cloned and sequenced.				
ST	sequence guanylate cyclase activating peptide cDNA				
IT	Urogenital tract (diseases; guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)				
IT	cDNA sequences (for prepro-guanylate cyclase-activating peptide II of human)				
IT	Cardiovascular diseases Digestive system diseases Gene therapy Nervous system diseases Respiratory tract diseases (guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)				
IT	Probes (nucleic acid) RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses) (guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)				
IT	Protein sequences (of prepro-guanylate cyclase-activating peptide II of human)				
IT	Livestock (transgenic; guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)				
IT	187224-17-5	187224-19-7	187224-21-1, 2-16-Uroguanylin (human reduced)		
	187224-23-3,	3-16-Uroguanylin (human)	187224-24-4	187224-26-6,	
	4-16-Uroguanylin (human reduced)		187224-27-7,	6-16-Uroguanylin (human . reduced)	
IT	RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (GCAP-II peptide; guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)				
IT	173833-60-8				
	RL: PRP (Properties)				
	(amino acid sequence; guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)				
IT	187286-48-2	187286-49-3	187286-50-6	187286-51-7	

RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (amino acid sequence; guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)

IT 170245-20-2P, Guanylate cyclase-activating peptide II (human reduced)
 RL: PRP (Properties); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)

IT 168658-36-4, GenBank Z50753
 RL: PRP (Properties)
 (nucleotide sequence; guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)

IT 187224-25-5 187285-49-0 187285-50-3 187413-32-7 187413-34-9
 187413-40-7 187413-42-9 187413-44-1 187413-45-2 187413-47-4
 187413-48-5 187413-49-6
 RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (prepro-GCAP-II peptide; guanylate cyclase-activating peptide II, cDNA for GCAP-II, and use of GCAP-II and nucleic acid for disease diagnosis and treatment)

L41 ANSWER 7 OF 18 HCPLUS COPYRIGHT 1999 ACS
 AN 1996:639463 HCPLUS
 DN 125:322258
 TI Isolation of peptides from human hemofiltrate: Strategy of systematic characterization
 AU Schulz-Knappe, P.; Bensch, K. W.; Schepky, A. G.; Hess, R.; Staendker, L.; Heine, G.; Sillard, R.; Raida, M.; Forssmann, W. -G.
 CS Lower Saxony Institute Peptide Research, Hannover, D-30625, Germany
 SO Pept. 1994, Proc. Eur. Pept. Symp., 23rd (1995), Meeting Date 1994,
 433-434. Editor(s): Maia, Hernani L. S. Publisher: ESCOM, Leiden, Neth.
 CODEN: 63MBAO
 DT Conference
 LA English
 CC 9-16 (Biochemical Methods)
 Section cross-reference(s): 2
 AB The authors isolated and systematically characterized circulating human peptides in 5000 dm³ of human hemofiltrate by cation-exchange extrn., salt pptn., ultrafiltration, preparative cation-exchange chromatog., and HPLC-mass spectrometry. Some 15 peptides in a peptide-contg. fraction were detected and characterized. This systematic anal. of human circulating peptides provides new information on known peptides and is an effective tool to detect new circulating peptides. Advantages of the HPLC-mass spectrometry method are discussed.
 ST peptide isolation hemofiltrate liq chromatog. spectrometry; mass spectrometry peptide blood filtrate
 IT Extraction (cation-exchange; peptides systematic characterization in human hemofiltrate)
 IT Blood analysis
 Mass spectrometry
 Precipitation (peptides systematic characterization in human hemofiltrate)
 IT Peptides, analysis
 RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)
 (peptides systematic characterization in human hemofiltrate)
 IT Chromatography, column and liquid (high-performance, peptides systematic characterization in human hemofiltrate)
 IT Chromatography, column and liquid (preparative, cation-exchange; peptides systematic characterization in

IT human hemofiltrate)
 IT Filtration
 (ultra-, of blood, peptides systematic characterization in human
 hemofiltrate)

L41 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 1999 ACS
 AN 1996:639454 HCAPLUS
 DN 125:322134
 TI Determination of sulfated peptides in human hemofiltrate by differential
 iodination
 AU Schepky, A. G.; Schulz-Knappe, P.; Forssmann, W. -G.
 CS Lower Saxony Institute Peptide Research, Hannover, D-30625, Germany
 SO Pept. 1994, Proc. Eur. Pept. Symp., 23rd (1995), Meeting Date 1994,
 412-413. Editor(s): Maia, Hernani L. S. Publisher: ESCOM, Leiden, Neth.
 CODEN: 63MBAO
 DT Conference
 LA English
 CC 9-8 (Biochemical Methods)
 AB A method is presented to facilitate the detection and subsequent
 quantification of sulfated peptides in crude biol. mixts., e.g., human
 hemofiltrate. After peptide extrn. by preparative anion-exchange
 chromatog., a concd. mixt. of peptides was obtained. The degree
 of radioiodination without previous desulfation was detd. to obtain
 control values, and then the sequence of cold iodination, desulfation, and
 radioiodination was applied. The data acquired was submitted to
 subtractive anal., thus reducing the background of radioiodination due to
 incomplete satn. of iodine-binding sites.
 ST hemofiltrate sulfated peptide detn differential iodination;
 radioiodination tyrosine sulfate detn peptide blood; blood filtrate
 sulfated peptide detn
 IT Blood analysis
 Iodination
 (sulfated peptides detn. in human hemofiltrate by differential
 iodination)
 IT Peptides, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (sulfated; sulfated peptides detn. in human hemofiltrate by
 differential iodination)
 IT Iodination
 (radiochem., sulfated peptides detn. in human hemofiltrate by
 differential iodination)
 IT Filtration
 (ultra-, of blood, sulfated peptides detn. in human hemofiltrate by
 differential iodination)
 IT 956-46-7, Tyrosine sulfate
 RL: ANT (Analyte); ANST (Analytical study)
 (of blood, sulfated peptides detn. in human hemofiltrate by
 differential iodination)

L41 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 1999 ACS
 AN 1996:551840 HCAPLUS
 DN 125:269683
 TI Specific determination of tyrosine-phosphorylated proteins and peptides by
 differential iodination
 AU Schepky, Andreas G.; Meinhhardt, Gerold; Austermann, Sabine; Adermann,
 Knut; Schulz-Knappe, Peter; Forssmann, Wolf-Georg;
 Hass, Ralf
 CS Niedersaechsisches Institut fuer Peptid-Forschung GmbH, Feodor Lynen Str.
 31, D-30625, Hannover, Germany
 SO J. Chromatogr., A (1996), 743(2), 273-282
 CODEN: JCRAEY; ISSN: 0021-9673
 DT Journal
 LA English
 CC 9-8 (Biochemical Methods)
 AB A new method for the selective and quant. detn. of phosphotyrosine
 residues is presented using a differential iodination technique.

Characterization of tyrosine-phosphorylated proteins was performed in a biol. system using human U937 myeloid leukemia cells. The method is based on the satn. of free iodine binding sites using nonradioactive iodine. Samples are then treated with alk. phosphatase. New iodine binding sites in dephosphorylated tyrosines are subsequently radioiodinated, resulting in specific labeling of tyrosine phosphates. Sepn. is performed by RP-HPLC or SDS-PAGE. Radiolabeled proteins are then identified using a radioactivity detector or autoradiog.

ST tyrosine phosphorylated protein peptide detn radiometry

IT Peptides, analysis

Proteins, analysis

RL: ANT (Analyte); ANST (Analytical study)

(tyrosine-phosphorylated; specific radiometric detn. of tyrosine-phosphorylated proteins and peptides by differential iodination)

IT Animal cell line

(U937, specific radiometric detn. of tyrosine-phosphorylated proteins and peptides by differential iodination)

IT 21820-51-9, Phospho-L-tyrosine

RL: ANT (Analyte); ANST (Analytical study)

(specific radiometric detn. of tyrosine-phosphorylated proteins and peptides by differential iodination)

L41 ANSWER 10 OF 18 HCPLUS COPYRIGHT 1999 ACS

AN 1996:438376 HCPLUS

DN 125:136673

TI Systematic isolation of circulating human peptides: The concept of peptide trapping

AU Schulz-Knappe, P.; Raida, M.; Meyer, M.; Quellhorst, E. A.; Forssmann, W. -G.

CS Lower Saxony Institute Peptide Research, Hannover, Germany

SO Eur. J. Med. Res. (1996), 1(5), 223-236

CODEN: EJMRFL; ISSN: 0949-2321

DT Journal; General Review

LA English

CC 9-0 (Biochemical Methods)

AB A review with 66 refs. The structural detn. of circulating human peptides is essential to det. their correct posttranslationally processed form.

Human hemofiltrate from patients with end stage renal disease is accessible in large quantities and is used as a source for the prepn. of circulating peptides. After complete peptide extn. from hemofiltrate, a systematic sepn. with different chromatog. techniques is achieved. Single peptides are selected according to their mass and chromatog. elution position. Following chromatog.

purifn., amino acid sequence anal. is performed in combination with data base search. The identification of circulating peptides leads to numerous fragments resulting from cleavage of larger plasma proteins as well as to the discovery of new peptide hormones. The results obtained so far give insight into the degrdn. of plasma proteins such as fibrinogen, which results in the generation of fragments with biol. activity themselves and in the identification of a novel cytokine HCC-1, the first member of .beta.-defensins in humans, hBD-1, and different peptides not present in any data base.

ST review systematic isolation circulating peptide trapping

IT Peptides, preparation

RL: PUR (Purification or recovery); PREP (Preparation)

(circulating; systematic isolation of circulating human peptides)

L41 ANSWER 11 OF 18 HCPLUS COPYRIGHT 1999 ACS

AN 1996:200169 HCPLUS

DN 124:255247

TI Human circulating .beta.-defensin hBD-1

IN Bensch, Klaus W.; Forssmann, Wolf-Georg; Schulz-Knappe,

Peter

PA Germany

SO Ger. Offen., 13 pp.

DT CODEN: GWXXBX
 LA Patent
 German
 IC ICM C07K007-00
 ICS A61K038-22; A61K049-00
 CC 9-5 (Biochemical Methods)
 Section cross-reference(s): 3, 13

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4427531	A1	19960208	DE 1994-4427531	19940804
AB	An antibiotic peptide, hBD-1, is isolated from human hemofiltrate and a cDNA is provided for prodn. of recombinant hBD-1 for diagnosis and treatment of disturbances in inflammatory and immune processes. Thus, hBD-1, with 36 amino acid residues, was purified from human hemofiltrate by (NH4)2SO4 pptn., ultrafiltration, and chromatog. and sequenced. Degenerate PCR primers based on this sequence were synthesized and used to amplify hBD-1 cDNA from various human tissues; the cDNA was also sequenced.				
ST	defensin purifn sequence cDNA; antibiotic peptide blood defensin				
IT	Inflammation (disorder, diagnosis of; human circulating .beta.-defensin hBD-1)				
IT	Ribonucleic acids, messenger RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses) (for .beta.-defensin, in diagnosis of inflammatory and immune disorders)				
IT	Gene, animal RL: BOC (Biological occurrence); BPR (Biological process); BIOL (Biological study); OCCU (Occurrence); PROC (Process) (for .beta.-defensin; human circulating .beta.-defensin hBD-1)				
IT	Antibiotics Deoxyribonucleic acid sequences Inflammation inhibitors Protein sequences (human circulating .beta.-defensin hBD-1)				
IT	Macrophage (migration disorder, .beta.-defensin for treatment of)				
IT	Diagnosis (of inflammatory and immune disorders; human circulating .beta.-defensin hBD-1)				
IT	Antibodies RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses) (to .beta.-defensin, in diagnosis of inflammatory and immune disorders)				
IT	Blood analysis (.beta.-defensin detn. in)				
IT	Cerebrospinal fluid Urine analysis (.beta.-defensin detn. in, in diagnosis of inflammatory and immune disorders)				
IT	Blood (.beta.-defensin purifn. from human)				
IT	Immunity (disorder, diagnosis of; human circulating .beta.-defensin hBD-1)				
IT	Antibodies RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses) (monoclonal, to .beta.-defensin, in diagnosis of inflammatory and immune disorders)				
IT	167679-93-8P RL: BOC (Biological occurrence); PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation) (human circulating .beta.-defensin hBD-1)				
IT	174957-49-4P 174957-80-3P RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation) (human circulating .beta.-defensin hBD-1)				

L41 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 1999 ACS
 AN 1995:398249 HCAPLUS
 DN 122:182324
 TI High-performance liquid **chromatographic** determination of sulfated peptides in human hemofiltrate using a radioactivity monitor
 AU Schepky, Andreas G.; **Schulz-Knappe, Peter; Forssmann, Wolf-Georg**
 CS Niedersaechsisches Institut fuer Peptid-Forschung GmbH,
 Feodor-Lynen-Strasse 31, Hannover, 30625, Germany
 SO J. Chromatogr., A (1995), 691(1-2), 255-61
 CODEN: JCRAEY
 DT Journal
 LA English
 CC 9-3 (Biochemical Methods)
 AB Specific labeling of tyrosine sulfate-contg. peptides was achieved using a differential iodination approach. In a complex peptide mixt. from human hemofiltrate, cold iodination to sat. free iodine binding sites was followed by mild acidic desulfation of tyrosine sulfate and subsequent radioiodination using iodine-125. Reaction steps were controlled by amino acid anal. using o-phthalodialdehyde precolumn derivatization and by spiking with a sulfated cholecystokinin fragment (CCK4-S). Sepn. of the peptide mixt. with RP-HPLC on a C18 column coupled to a radioactivity monitor led to the sensitive (.ltoreq.5 pM) and specific detn. of tyrosine sulfate-contg. peptides.
 ST liq **chromatog** sulfated peptide hemofiltrate
 IT **Peptides, analysis**
 RL: **ANT (Analyte); ANST (Analytical study)**
 (sulfated; high-performance liq. **chromatog.** detn. of sulfated peptides in human hemofiltrate using a radioactivity monitor)
 IT **Chromatography, column and liquid**
 (high-performance, high-performance liq. **chromatog.** detn. of sulfated peptides in human hemofiltrate using a radioactivity monitor)

L41 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 1999 ACS
 AN 1995:234752 HCAPLUS
 DN 122:24582
 TI Purification and synthesis of a guanylate cyclase-activating peptide (GAP-1) from human blood for therapeutic use
 IN **Forssmann, Wolf Georg; Hill, Oliver; Zucht, Hans Dieter; Kuhn, Michaela; Maegert, Hans Juergen; Adermann, Knut; Raida, Manfred; Schulz-Knappe, Peter**
 PA Forssmann, Wolf Georg, Germany
 SO Ger. Offen., 27 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 IC ICM C07K007-10
 ICS C07K003-20; A61K037-02
 ICA C12N009-88; C12N015-79; C12N015-74; C12N015-70
 CC 2-6 (Mammalian Hormones)
 Section cross-reference(s): 1, 9
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
------------	------	------	-----------------	------

PI DE 4309815 A1 19940929 DE 1993-4309815 19930326
 AB The GAP-1 guanylate cyclase-activating peptide that plays a role in hormonal processes in the digestive tract is purified from human blood. The protein is useful in the diagnosis and treatment of digestive tract disorders. The peptide was purified from a hemo-filtrate prep'd. with a 20,000 Da-cutoff filter using seven chromatog. steps with activity monitored by a bioassay using T84 cells. Chem. synthesis of the peptide and of active fragments is demonstrated.
 ST guanylate cyclase activating peptide serum purifn; GAP1 serum purifn synthesis
 IT Protein sequences

IT (of guanylate cyclase activating peptide GAP-1 of human)
 IT Blood (purifn. and synthesis of a guanylate cyclase-activating peptide (GAP-1) from human blood for therapeutic use)
 IT Antibodies RL: BSU (Biological study, unclassified); BIOL (Biological study) (to guanylate cyclase-activating peptide GAP-1 of human; purifn. and synthesis of a guanylate cyclase-activating peptide (GAP-1) from human blood for therapeutic use)
 IT Heart, disease
 Kidney, disease
 Lung, disease (treatment of; purifn. and synthesis of a guanylate cyclase-activating peptide (GAP-1) from human blood for therapeutic use)
 IT Digestive tract
 Genitourinary tract
 Nervous system (disease, treatment of; purifn. and synthesis of a guanylate cyclase-activating peptide (GAP-1) from human blood for therapeutic use)
 IT Proteins, specific or class RL: BSU (Biological study, unclassified); PUR (Purification or recovery); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation) (guanylate cyclase-activating, GAP-1; purifn. and synthesis of a guanylate cyclase-activating peptide (GAP-1) from human blood for therapeutic use)
 IT 150295-38-8P 150549-36-3P, Guanylin, pro- (human clone pHPG2)
 159544-22-6P 159544-23-7P RL: BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation) (amino acid sequence; purifn. and synthesis of a guanylate cyclase-activating peptide (GAP-1) from human blood for therapeutic use)

L41 ANSWER 14 OF 18 HCPLUS COPYRIGHT 1999 ACS
 AN 1994:318508 HCPLUS
 DN 120:318508
 TI Human hemofiltrate as a source of circulating bioactive peptides: determination of amino acids, peptides and proteins
 AU Schepky, Andreas G.; Bensch, Klaus W.; **Schulz-Knappe, Peter;**
Forssmann, Wolf Georg
 CS Niedersaechs. Inst. Pept.-Forsch. GmbH, Hannover, 30625, Germany
 SO Biomed. Chromatogr. (1994), 8(2), 90-94
 CODEN: BICHE2; ISSN: 0269-3879
 DT Journal
 LA English
 CC 9-3 (Biochemical Methods)
 Section cross-reference(s): 14
 AB Human hemofiltrate (HF) was evaluated regarding its content of free amino acids, proteins, and regulatory peptides. Human HF was obtained from patients with end stage renal disease (ESRD). In contrast to plasma it mainly contains low and middle wt. mols. <45 kDa. The content of free amino acids, peptides, and proteins in pooled filtrate was detd. by amino acid anal. using ortho-phthalidialdehyde/fluorenyl Me chloroformate precolumn derivatization. The total amt. of peptides and proteins in human HF is 49.4 mg/L. The levels of all free amino acids (230 mg/L) and the concn. of some regulatory peptides like insulin, endothelin, gastrin, vasopressin and angiotensin II were similar compared with blood plasma. The amt. of peptides and proteins detected in the filtrate was around 0.07% of total plasma proteins and consisted mainly of smaller proteins and peptides as shown by size exclusion chromatog. The presence of large proteins in plasma is reduced by a factor of 1500 after filtration. The authors conclude that human hemofiltrate is a valuable source for the large-scale extn. of regulatory peptides.

ST hemofiltrate amino acid peptide protein detn; blood dialysis filtrate peptide detn; **chromatog** hemofiltrate analysis
 IT Amino acids, analysis
 Peptides, analysis
 Proteins, analysis
 RL: **ANT (Analyte); ANST (Analytical study)**
 (detn. of, in human hemofiltrate, blood plasma compn. in relation to)
 IT Kidney, disease
 (failure, amino acids and peptides and proteins detn. in dialysis hemofiltrate from, blood plasma compn. in relation to)
 IT Dialysis
 (hemo-, amino acids and peptides and proteins detn. in filtrate from, in human)
 IT 56-40-6, Glycine, analysis 56-41-7, Alanine, analysis 56-45-1, Serine, analysis . 56-84-8, Aspartic acid, analysis 56-85-9, Glutamine, analysis 56-86-0, Glutamic acid, analysis 56-87-1, Lysine, analysis 60-18-4, Tyrosine, analysis 61-90-5, Leucine, analysis 63-68-3, Methionine, analysis 63-91-2, Phenylalanine, analysis 70-47-3, Asparagine, analysis 71-00-1, Histidine, analysis 72-18-4, Valine, analysis 72-19-5, Threonine, analysis 73-22-3, Tryptophan, analysis 73-32-5, Isoleucine, analysis 74-79-3, Arginine, analysis 147-85-3, Proline, analysis 9002-76-0, Gastrin 9004-10-8, Insulin, analysis 11000-17-2, Vasopressin 11128-99-7, Angiotensin II 116243-73-3, Endothelin
 RL: **ANT (Analyte); ANST (Analytical study)**
 (detn. of, in human hemofiltrate, blood plasma compn. in relation to)

L41 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 1999 ACS
 AN 1994:293504 HCAPLUS
 DN 120:293504
 TI Determination of sulfated peptides by differential iodination
 AU Schepky, Andreas G.; Schmidt, Andre M.; Schmidt, Thomas;
 Schulz-Knappe, Peter; Forssmann, Wolf Georg
 CS Niedersaechsisches Inst., Peptid-Forschung GmbH, Hannover, D-30625, Germany
 SO Biol. Chem. Hoppe-Seyler (1994), 375(3), 201-3
 CODEN: BCHSEI; ISSN: 0177-3593
 DT Journal
 LA English
 CC 9-16 (Biochemical Methods)
 Section cross-reference(s): 2
 AB A sequential approach was developed to label tyrosine sulfate and peptides contg. tyrosine sulfate selectively. Amino acids and peptides contg. tyrosine and tyrosine sulfate were first iodinated using the chloramine-T method. Reaction products were detd. by RP-HPLC. Mono- and diiodination of tyrosine and several model peptides was achieved within 120 s incubation time. Iodination of free tyrosine sulfate and sulfated cholecystokinin26-33 was <5%. After desulfation of the reaction products with 1N HCl, successful radioiodination of desulfated tyrosine was carried out whereas tyrosine incorporated radioactive iodine only 10%. As shown by RP-HPLC specific labeling of tyrosine sulfate-contg. peptides with ¹²⁵I was achieved.
 ST sulfated peptide detn differential iodination
 IT Iodination
 (sulfated peptides detn. by differential)
 IT **Peptides, reactions**
 RL: RCT (Reactant)
 (tyrosine sulfate-contg., iodination of, detn. in relation to)
 IT **Peptides, reactions**
 RL: RCT (Reactant)
 (tyrosine-contg., iodination of, detn. in relation to)
 IT **Peptides, compounds**
 RL: **ANT (Analyte); ANST (Analytical study)**
 (tyrosine-contg., sulfated, detn. of, by differential iodination)
 IT 60-18-4, Tyrosine, reactions 60-18-4D, Tyrosine, peptides contg.
 956-46-7, Tyrosine sulfate 956-46-7D, Tyrosine sulfate, peptides contg.
 25126-32-3 25679-24-7 155070-90-9

RL: RCT (Reactant)
 (iodination of, sulfated peptides detn. in relation to)
 IT 7553-56-2
 RL: ANST (Analytical study)
 (iodination, sulfated peptides detn. by differential)

L41 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 1999 ACS
 AN 1993:665548 HCAPLUS
 DN 119:265548
 TI Immunochemistry of peptide. II. Immunohistochemical studies using antibodies against synthetic peptides
 AU Mifune, Hiroharu; Nokihara, Kiyoshi; Suzuki, Syusaku; **Forssmann, Wolf Georg**
 CS Sch. Med., Kurume Univ., Kurume, 830, Japan
 SO Shimadzu Hyoron (1993), 50(1), 129-36
 CODEN: SHHYAG; ISSN: 0371-005X
 DT Journal; General Review
 LA Japanese
 CC 9-0 (Biochemical Methods)
 Section cross-reference(s): 2, 15
 AB A review with 17 refs. on immunohistochem. studies using antibodies against synthetic peptides. Progress in immunohistochem. and fundamental histochem. methods using specific antibodies against synthetic peptides are described in detail. The previous immunohistochem. studies on cardiodilatin, a cardiac hormone, are also described.
 ST immunohistochem peptide antibody review
 IT Antibodies
 RL: ANST (Analytical study)
 (in peptide immunohistochem. study)
 IT Peptides, biological studies
 RL: BIOL (Biological study)
 (synthetic, immunohistochem. of, antibodies in study of)
 IT Immunoassay
 (immunohistochem., of peptides, antibodies in study of)
 IT 92047-08-0, Cardiodilatin
 RL: PROC (Process)
 (immunohistochem. study of, antibodies in)

L41 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 1999 ACS
 AN 1988:401491 HCAPLUS
 DN 109:1491
 TI Recovery of biologically active proteins and peptides from hemodialyzate, hemofiltrate, or body fluids
 IN **Forssmann, Wolf Georg**
 PA Fed. Rep. Ger.
 SO Ger. Offen., 3 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 IC ICM C07K015-06
 ICS C07K007-40; C07K007-34; C07K007-32; C07K007-30; C07K003-02
 ICA C07K003-28
 CC 2-1 (Mammalian Hormones)
 Section cross-reference(s): 9, 63
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 3633797	A1	19880407	DE 1986-3633797	19861003
DE 3633797	C2	19950810		

AB The liq. produced as a byproduct during hemodialysis or hemofiltration, contg. blood proteins and peptides of mol. wt. <20,000, is used for recovery of biol. active proteins and peptides, e.g. insulin and other peptide hormones. Protein-contg. hemofiltrate was adjusted to pH 2.7 with AcOH and mineral acid, and 2.5 kg alginic acid/1000 L was added with stirring. After 10 h, the alginic acid with bound peptides was filtered out and washed with EtOH and 0.05M mineral acid. After addn. of 0.2M

mineral acid, the peptides were concd. in <5 L and salted out with satd. NaCl at pH 3.8-4.0. The peptides were further purified by gel filtration or ultrafiltration followed by lyophilization. The product contained cardiodilatin 99-126, insulin, glucagon, secretin, gastrin, etc. as shown by RIA, bioassay.

ST protein recovery hemodialyzate hemofiltrate; peptide recovery hemodialyzate hemofiltrate

IT Adsorbents
(for peptide and protein recovery from hemodialyzate or hemofiltrate)

IT Peptides, biological studies
RL: BIOL (Biological study)
(hormones, recovery of, from hemodialyzate or hemofiltrate)

IT Heart, composition
(peptide hormones of, recovery of, from hemodialyzate or hemofiltrate)

IT Silica gel, biological studies
RL: BIOL (Biological study)
(peptides and proteins recovery from hemodialyzate or hemofiltrate by adsorption on)

IT Ascitic fluid
Cerebrospinal fluid
Urine
(peptides and proteins sepn. from)

IT Hormones
RL: BIOL (Biological study)
(peptides, recovery of, from hemodialyzate or hemofiltrate)

IT Gastrointestinal hormones
Neurohormones
Pituitary hormones
Thyroid hormones
Proteins, preparation
RL: PROC (Process)
(recovery of, from hemodialyzate or hemofiltrate)

IT Dialysis
(hemo-, peptides and proteins recovery from waste liq. from)

IT Filtration
(ultra-, of blood, peptides and proteins recovery from waste liq. from)

IT 1343-98-2P, Silicic acid 9005-32-7P, Alginic acid
RL: PREP (Preparation)
(peptides and proteins recovery from hemodialyzate or hemofiltrate by adsorption on)

IT 9007-92-5P, Glucagon, biological studies 52906-92-0P, Motilin
107852-16-4P, Cadiodilatin-28
RL: BIOL (Biological study); PREP (Preparation)
(recovery of, from hemodialyzate or hemofiltrate)

IT 1393-25-5P, Secretin 9002-64-6P, Parathyroid hormone 9002-76-0P,
Gastrin 9004-10-8P, Insulin, biological studies
RL: PREP (Preparation)
(recovery of, from hemodialyzate or hemofiltrate)

L41 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 1999 ACS
AN 1983:157423 HCAPLUS
DN 98:157423
TI Region-specific radioimmunoassay and its application to the study of neurotensin-related peptides in the chicken
AU Carraway, Robert E.; Reinecke, M.; Forssmann, W. G.
CS Med. Sch., Univ. Massachusetts, Worcester, MA, USA
SO Pharmacol. Biochem. Aspects Neurotransm. Recept., Taniguchi Symp. Brain Sci., 4th (1983), Meeting Date 1980, 205-25. Editor(s): Yoshida, Hiroshi; Yamamura, Henry I. Publisher: Wiley, New York, N. Y.
CODEN: 49LKAW
DT Conference
LA English
CC 9-10 (Biochemical Methods)
Section cross-reference(s): 12
AB A general method which uses RIA and gel chromatog. for the detection and isolation of variants of known peptides is outlined and

discussed. The method was used to characterize immunochem. the neuropeptides family in vertebrates and to isolate and identify neuropeptides in chicken.

ST chicken neuropeptides radioimmunoassay; gel chromatog
peptide

IT Chicken
(neuropeptides detn. in, by region-specific
radioimmunoassay)

IT Peptides, analysis
RL: ANST (Analytical study)
(neuropeptides, detn. of, in chicken by region-specific
radioimmunoassay)

IT Chromatography, gel
(of peptides)

IT Immunochemical analysis
(radioimmunoassay, region-specific, for neuropeptides)

IT 39379-15-2
RL: ANST (Analytical study)
(peptides related to, detn. of, in chicken by region-specific
radioimmunoassay)

=> fil biosis
FILE 'BIOSIS' ENTERED AT 17:33:11 ON 29 DEC 1999
COPYRIGHT (C) 1999 BIOSIS(R)

FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 23 December 1999 (19991223/ED)

The BIOSIS file has been reloaded. Enter HELP RLOAD and HELP REINDEXING
for details.

=> d his 142-157

(FILE 'HCAPLUS' ENTERED AT 17:22:13 ON 29 DEC 1999)

FILE 'BIOSIS' ENTERED AT 17:22:55 ON 29 DEC 1999
E FORSSMAN/AU

L42 544 S E14,E15,E25-E32
E SCHULZ KNAP/AU

L43 55 S E4-E6
E SCHRADER M/AU

L44 106 S E3-E9,E18,E19
E OPITZ H/AU

L45 93 S E3,E4,E9

L46 738 S L42-L45

L47 387 S L46 AND (10054 OR 10064)/CC

L48 293 S L46 AND (PEPTIDE OR PROTEIN)

L49 479 S L47,L48

L50 8 S L49 AND MOLECULAR WEIGHT

L51 47 S L49 AND (?CHROMATOG? OR ?SPECTROM?)

L52 31 S L51 AND (10050 OR 10504)/CC

L53 24 S L51 AND (*10050 OR *10504)/CC

L54 4 S L53 AND DATA?

L55 2 S L54 NOT (SLURP OR BITISTATIN)/TI

L56 4 S (MAPPING OR BANK)/TI AND L51

L57 5 S L55,L56

=> d all tot 157

L57 ANSWER 1 OF 5 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1999:396359 BIOSIS
DN PREV199900396359

TI Application of a **peptide bank** from porcine brain in isolation of regulatory **peptides**.
 AU Seiler, Petra; Staendker, Ludger; Mark, Silke; Hahn, Wilfried; **Forssmann, Wolf-Georg**; Meyer, Markus (1)
 CS (1) Lower Saxony Institute for Peptide Research, Feodor-Lynen-Strasse 31, 30625, Hannover Germany
 SO Journal of Chromatography A, (Aug. 6, 1999) Vol. 852, No. 1, pp. 273-283.
 ISSN: 0021-9673.
 DT Article
 LA English
 SL English
 AB Over the past years, the introduction of biological assay systems, random **peptide** sequencing and orphan receptor screening has led to the isolation and identification of new regulatory **peptides** with potential clinical impact. We have developed a method for separating **peptides** into about 300 fractions from large amounts of porcine brain tissue. The preparation of this **peptide** bank consists of three steps including ultrafiltration followed by cation-exchange separation and reversed-phase **chromatography**. These fractions represent the **peptide** bank with desalted and lyophilized **peptides** from brain tissue. Molecular masses of the **peptides** in the fractions are determined by matrix-assisted laser desorption ionization MS and a mass **data** bank is subsequently generated. For systematic analysis of the **peptides**, a subsequent two-step purification procedure is followed by Edman sequencing resulting in the identification of different **peptides**. A survival assay with a neuronal cell line revealing the stimulatory and inhibitory activities is applied as a model to test the 300 fractions. This primary screen indicates that the biological activities of the extracted **peptides** are easily characterized and, moreover, can be related to the biochemical entities. We conclude that the established **peptide** bank is an efficient and useful tool for the isolation of regulatory brain **peptides** applying different purification strategies.
 CC Biochemical Studies - General *10060
 Biochemical Methods - General *10050
 Biophysics - General Biophysical Studies *10502
 Nervous System - General; Methods *20501
 BC Suidae 85740
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
 IT Parts, Structures, & Systems of Organisms
 brain: nervous system
 IT Chemicals & Biochemicals
 regulatory **peptides**: analysis, isolation
 IT Methods & Equipment
 cation-exchange separation: Isolation/Purification Techniques: CB, separation method; matrix assisted laser-desorption ionization mass **spectrometry**: analytical method, spectroscopic techniques: CB; model 473A pulse-liquid Edman degradation sequencer: Applied Biosystems, equipment; model 494A pulse-liquid Edman degradation sequencer: Applied Biosystems, equipment; reversed-phase **chromatography**: Isolation/Purification Techniques: CB, purification method; Edman sequencing: sequencing method, sequencing techniques; LaserTec RBT matrix assisted laser desorption ionization mass **spectrometer**: Perseptive/Vestec, equipment; Vydac reversed-phase column **chromatograph**: equipment
 ORGN Super Taxa
 Suidae: Artiodactyla, Mammalia, Vertebrata, Chordata, Animalia
 ORGN Organism Name
 porcine (Suidae)
 ORGN Organism Superterms
 Animals; Artiodactyls; Chordates; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Vertebrates

DN PREV199900396353
 TI Strategy for identifying circulating fragments of insulin-like growth factor binding **proteins** in a hemofiltrate **peptide bank**.
 AU Mark, Silke; **Forssmann, Wolf-Georg**; Staendker, Ludger (1)
 CS (1) Lower Saxony Institute for Peptide Research (IPF), Feodor-Lynen Strasse 31, D-30625, Hannover Germany
 SO Journal of Chromatography A, (Aug. 6, 1999) Vol. 852, No. 1, pp. 197-205.
 ISSN: 0021-9673.
 DT Article
 LA English
 SL English
 AB A differentiated strategy was established to isolate circulating forms of the six human insulin-like growth factor binding **proteins** (IGFBPs). As starting material we used our **peptide** bank, a comprehensive blood plasma peptidoma generated from human blood filtrate. The **peptides** were initially identified in the fractions of the hemofiltrate **peptide** bank by their immunoreactivity, their capacity to bind the insulin-like growth factors (IGFs), and their molecular masses determined by polyacrylamide gel electrophoresis and matrix-assisted laser desorption ionization-mass **spectrometry** (MALDI-MS). Fractions revealing both immunoreactivity and IGF-binding capacity were analyzed by direct sequencing of immunoreactive bands from a Coomassie-stained gel. Further purification of the IGFBP **peptides** was performed by consecutive **chromatographic** steps guided by sensitive MALDI-MS. Using this strategy, different fragments of IGFBP-3, -4, and -5 were identified and a fragment of IGFBP-4 was purified to homogeneity.
 CC Biochemical Studies - General *10060
 Biochemical Methods - General *10050
 BC Biophysics - General Biophysical Studies *10502
 Hominidae 86215
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
 IT Chemicals & Biochemicals
 insulin-like growth factor binding **protein**-3: analysis, circulating fragments, isolation; insulin-like growth factor binding **protein**-4: analysis, isolation, circulating fragments; insulin-like growth factor binding **protein**-5: analysis, isolation, circulating fragments; insulin-like growth factor binding **proteins**: analysis, circulating fragments, isolation
 IT Methods & Equipment
 immunoblotting: Detection/Labeling Techniques, analytical method; liquid **chromatography**: **chromatographic** techniques, isolation method; matrix assisted laser desorption ionization mass **spectrometry**: analytical method, spectroscopic techniques: CB; LaserTec RBT II mass spectrometer: PerSeptive Biosystems, equipment; SDS-PAGE [SDS-polyacrylamide gel electrophoresis]: polyacrylamide gel electrophoresis, purification method; Voyager-DE STR spectrometer: PerSeptive Biosystems, equipment
 ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
 ORGN Organism Name
 human (Hominidae)
 ORGN Organism Superterms
 Animals; Chordates; Humans; Mammals; Primates; Vertebrates
 L57 ANSWER 3 OF 5 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1999:256439 BIOSIS
 DN PREV199900256439
 TI Composition of the **peptide** fraction in human blood plasma:
 Database of circulating human **peptides**.
 AU Richter, Rudolf (1); **Schulz-Knappe, Peter**; Schrader, Michael; Staendker, Ludger; Juergens, Michael; Tammen, Harald; **Forssmann, Wolf-Georg**
 CS (1) Lower Saxony Institute for Peptide Research, Feodor-Lynen-Strasse 31,

SO D-30625, Hannover Germany
 Journal of Chromatography B, (April 16, 1999) Vol. 726, No. 1-2, pp.
 25-35.

ISSN: 0378-4347.

DT Article
 LA English
 SL English

AB A **database** was established from human hemofiltrate (HF) that consisted of a mass **database** and a sequence **database**, with the aim of analyzing the composition of the **peptide** fraction in human blood. To establish a mass **database**, all 480 fractions of a **peptide** bank generated from HF were analyzed by MALDI-TOF mass **spectrometry**. Using this method, over 20 000 molecular masses representing native, circulating **peptides** were detected. Estimation of repeatedly detected masses suggests that approximately 5000 different **peptides** were recorded. More than 95% of the detected masses are smaller than 15 000, indicating that HF predominantly contains **peptides**. The sequence **database** contains over 340 entries from 75 different **protein** and **peptide** precursors. 55% of the entries are fragments from plasma **proteins** (fibrinogen A 13%, albumin 10%, mu2-microglobulin 8.5%, cystatin C 7%, and fibrinogen B 6%). Seven percent of the entries represent **peptide** hormones, growth factors and cytokines. Thirty-three percent belong to **protein** families such as complement factors, enzymes, enzyme inhibitors and transport **proteins**. Five percent represent novel **peptides** of which some show homology to known **peptide** and **protein** families. The coexistence of processed **peptide** fragments, biologically active **peptides** and **peptide** precursors suggests that HF reflects the **peptide** composition of plasma. Interestingly, **protein** modules such as EGF domains (meprin Aalpha-fragments), somatomedin-B domains (vitronectin fragments), thyroglobulin domains (insulin like growth factor-binding **proteins**), and Kazal-type inhibitor domains were identified. Alignment of sequenced fragments to their precursor **proteins** and the analysis of their cleavage sites revealed that there are different processing pathways of plasma **proteins** in vivo.

CC Blood, Blood-Forming Organs and Body Fluids - General; Methods *15001
Biochemical Methods - General *10050
 Biochemical Studies - General *10060

BC Hominidae 86215

IT Major Concepts
 Blood and Lymphatics (Transport and Circulation); Methods and Techniques

IT Parts, Structures, & Systems of Organisms
 blood plasma: blood and lymphatics

IT Chemicals & Biochemicals
 albumin; beta-2-microglobulin; cystatin C; cytokines; cDNA [complementary DNA]; fibrinogen A; fibrinogen B; growth factors; human hemofiltrate: Nephrologisches Zentrum Niedersachsen; **peptide** hormones; **peptides**; somatomedin-B; thyroglobulin

IT Methods & Equipment
 alginic acid exchanger: Merck, laboratory equipment; amino acid sequencing: Recombinant DNA Technology, gene sequencing method, sequencing techniques; cation exchange **chromatography**: column **chromatography**, isolation method; **peptide** extraction: Isolation/Purification Techniques: CB, extraction method; reversed-phase **chromatography**: **chromatographic** techniques, isolation method; strong cation exchanger: Merck, laboratory equipment; Autopilot **chromatography** system: PerSeptive Biosystems, laboratory equipment; API III-plus triple quadrupol-MS system: PE Sciex Instruments, laboratory equipment; LaserTec RBT II MALDI-TOF-MS system: Perseptive/Vastec, laboratory equipment; Model 473 A gas-phase sequencer: Applied Biosystems, laboratory equipment; Model 494 A gas-phase sequencer: Applied Biosystems, laboratory equipment; MALDI-TOF mass **spectrometry**

[matrix-assisted laser/desorption ionization-time-of-flight mass spectrometry]: analytical method, mass **spectrometry**:
CB

IT Miscellaneous Descriptors
amino acid sequence

ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
human (Hominidae)

ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates

RN 91448-99-6 (CYSTATIN C)
63774-77-6 (SOMATOMEDIN-B)
9005-32-7 (ALGINIC ACID)

L57 ANSWER 4 OF 5 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:433466 BIOSIS
DN PREV199799732669

TI Peptide bank generated by large-scale preparation of circulating human peptides.

AU Schulz-Knappe, Peter (1); Schrader, Michael;
Staendker, Ludger; Richter, Rudolf; Hess, Ruediger; Juergens, Michael;
Forssmann, Wolf-Georg

CS (1) Niedersaechsisches Inst. Peptid-Forschung GmbH, Feodor-Lynen-Strasse 31, 30625 Hannover Germany

SO Journal of Chromatography A, (1997) Vol. 776, No. 1, pp. 125-132.
ISSN: 0021-9673.

DT Article
LA English

AB Human hemofiltrate (HF) is a source for the purification of circulating regulatory peptides. HF is obtained in large quantities during treatment of patients suffering from chronic renal failure. We have developed a large-scale method for separating peptides from amounts up to 10 000 l HF into 300 fractions in a standardized two-step procedure, employing cation-exchange separation, followed by reversed-phase chromatography. These fractions represent a peptide bank containing bioactive, desalted and lyophilized peptides of blood. Screening for and isolation of regulatory human peptides is simplified by using this peptide bank.

CC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
Biochemical Studies - Proteins, Peptides and Amino Acids *10064
Biophysics - General Biophysical Techniques *10504

BC Hominidae *86215

IT Major Concepts
Biochemistry and Molecular Biophysics; Methods and Techniques

IT Miscellaneous Descriptors
BIOCHEMISTRY AND BIOPHYSICS; HEMOFILTRATE; METHODOLOGY; PEPTIDE BANK; PEPTIDES; PURIFICATION METHOD; REVERSED-PHASE CHROMATOGRAPHY

ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
human (Hominidae)

ORGN Organism Superterms
animals; chordates; humans; mammals; primates; vertebrates

L57 ANSWER 5 OF 5 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:433465 BIOSIS
DN PREV199799732668

TI Mapping of peptides and protein fragments in human urine using liquid chromatography-mass spectrometry.

AU Heine, Gabriele; Raida, Manfred (1); Forssmann, Wolf-George

CS (1) Lower Saxony Inst. Peptide Res., Feodor-Lynen-Strasse 31, D-30625 Hannover Germany

SO Journal of Chromatography A, (1997) Vol. 776, No. 1, pp. 117-124.

ISSN: 0021-9673.

DT Article
LA English

AB A method for the mapping of **peptide** mixtures, heterogeneous with respect to the concentration and the size of individual **peptides**, was established with the aim of obtaining a comprehensive analysis of human urine **peptides**. **Peptide** extraction and fractionation were optimized to achieve a two-step analysis, using reversed-phase and ion-exchange **chromatography**. Highly sensitive detection of **peptides** was performed by coupling microbore HPLC with electrospray mass **spectrometry** (ESI-MS). **Peptides** such as urodilatin, angiotensin and fragments of psoriasisin, granulin and uromodulin were isolated and sequenced. The procedure presented here is a tool for the analysis of complex **peptide** mixtures from human urine.

CC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504
 Urinary System and External Secretions - Physiology and Biochemistry *15504

BC Hominidae *86215

IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques; Urinary System (Chemical Coordination and Homeostasis)

IT Miscellaneous Descriptors
 ANALYTICAL METHOD; BIOCHEMISTRY AND BIOPHYSICS; EXCRETORY SYSTEM; HIGH PERFORMANCE LIQUID **CHROMATOGRAPHY-ELECTROSPRAY MASS SPECTROMETRY**; METHODOLOGY; PEPTIDES; PROTEIN FRAGMENTS; URINARY SYSTEM; URINE

ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
 human (Hominidae)

ORGN Organism Superterms
 animals; chordates; humans; mammals; primates; vertebrates

=> fil wpids
FILE 'WPIDS' ENTERED AT 08:23:35 ON 30 DEC 1999
COPYRIGHT (C) 1999 DERWENT INFORMATION LTD

FILE LAST UPDATED: 21 DEC 1999 <19991221/UP>
>>>UPDATE WEEKS:
 MOST RECENT DERWENT WEEK 199954 <199954/DW>
 DERWENT WEEK FOR CHEMICAL CODING: 199954
 DERWENT WEEK FOR POLYMER INDEXING: 199954
 DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> D COST AND SET NOTICE DO NOT REFLECT SUBSCRIBER DISCOUNTS -
 SEE HELP COST <<<

>>> IMPORTANT DERWENT ANNOUNCEMENT ABOUT CHANGES TO CPI
 SUBSCRIBER INDEXING - SEE NEWS <<<

>>> FOR UP-TO-DATE INFORMATION ABOUT ALL 'NEW CONTENT' CHANGES TO
 WPIDS, INCLUDING THE DERWENT CHEMISTRY RESOURCE (DCR),
 PLEASE VISIT [<<<](http://www.derwent.com/newcontent.html)

=> d his

(FILE 'HOME' ENTERED AT 07:27:18 ON 30 DEC 1999)
 SET COST OFF
 SET AUHELP OFF

FILE 'WPIDS' ENTERED AT 07:28:06 ON 30 DEC 1999
 E WO9807036/PN

L1 1 S E3
 E FROSSMAN/AU
 E FORSSMAN/AU

L2 43 S E8,E9
 E FORSMAN/AU
 E OPITZ/AU

L3 60 S E13,E15
 E SCHRADER M/AU

L4 19 S E3-E8
 E SCHULZ KNAP/AU

L5 18 S E4,E5

L6 116 S L2-L5

L7 4056 S G01N033-68/IC, ICM, ICS, ICA, ICI

L8 10 S L6 AND L7

L9 9 S L8 AND S03-E14H?/MC

L10 1 S L8 NOT L9

L11 9 S L1,L9

L12 447 S (M423 (S) M750 (S) N102 (S) Q233 (S) V752 (S) (V901 OR V902))

L13 663 S (M423 (S) M760 (S) N102 (S) Q233 (S) (V600 OR V644) (S) V754)

L14 1 S L6 AND L12,L13

L15 9 S L11,L14

L16 1093 S L12,L13

L17 130 S L7 AND L16

L18 26866 S (B04-F01 OR B04-B02 OR B04-B02B OR B04-B04 OR B04-B04A OR B04

L19 7429 S (C04-F01 OR C04-B02 OR C04-B02B OR C04-B04 OR C04-B04A OR C04

L20 696 S L7 AND L18,L19

L21 547 S L20 AND S03-E14H?/MC

L22 592 S L20 AND (B12-K04 OR B12-K04A OR C12-K04 OR C12-K04A OR D05-H0

L23 666 S L21,L22

L24 758 S L17,L23

L25 643 S L24 AND S03/DC
 0 S L25 AND (?MALDI? OR MATRIX(L)ASSIS?(L)LASER(L)DESORPT?(L)IONI

L26 2 S L7 AND (?MALDI? OR MATRIX(L)ASSIS?(L)LASER(L)DESORPT?(L)IONI?

L27 4 S L7 AND (?ELECTROSPRAY? OR ?ELECTRO SPRAY?)

L28 0 S L7 AND (ESIMS OR ESI MS OR ESI MASS SPECTROM?)

L29 0 S L7 AND (?MICROBORE? OR ?MICRO BORE?)

L30 24 S L7 AND LOW MOLECULAR WEIGHT

L31 3 S L31 AND L16

L32 6 S L31 AND L20

L33 12 S L32,L33,L27,L28

L34 20 S L15,L34

L35 17 S L31 NOT L35

L36 37 S L35,L36

L37 36 S L37 AND G01N033-68/IC, ICM

L38 10 S L37 AND G01N033-68/ICM

L39 27 S L37 NOT L39
 6 S L39 NOT (VENOM OR ARTHRITIC OR CALMODULIN OR ISOTHIOCYANATE) /

L40 1 S L40 AND (DETECTION AND ANALYTE#)/TI

L41 1 S L40 AND (STRUCTURAL ANALYSIS)/TI

L42 1 S L40 AND (ISOLAT? AND CHROMATOG?)/TI

L43 1 S L40 AND (IMMOBIL? AND VAPOUR)/TI

L44 16 S L15,L41-L45

L45 63 S L25 AND MOLECULAR WEIGHT

L46 58 S L47 NOT L31

L47 1 S L48 AND IMMUNOGLOBULIN/TI

L48 633 S L24 AND S03-E14?/MC

L49 758 S L24,L50
 1 S L51 AND ?CHROMATOG? AND ?SPECTROMET?

L50 10 S L7 AND ?CHROMATOG? AND ?SPECTROMET?

L51 18 S L46,L49,L52

L52 7 S L53 NOT L54

L53 2 S L51 AND REVERSE (L) (?CHROMATOG? OR ?SPECTROM?)

=> d all tot abeq 154

L54 ANSWER 1 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1999-591377 [50] WPIDS
 CR 1998-570290 [49]; 1999-591376 [49]
 DNN N1999-436154 DNC C1999-172815
 TI Screening for compounds with affinity for target receptors, using target receptors on a column, frontal **chromatography** and mass **spectrometry**.
 DC B04 D16 J04 S03 V05
 IN HINDSGAUL, O; SCHRIEMER, D C
 PA (SYNS-N) SYNSORB BIOTECH INC
 CYC 86
 PI WO 9950669 A1 19991007 (199950)* EN 89p G01N033-68 <--
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
 OA PT SD SE SL SZ UG ZW
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB
 GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU
 LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR
 TT UA UG US UZ VN YU ZA ZW
 ADT WO 9950669 A1 WO 1999-CA266 19990326
 PRAI US 1998-70131 19980429; US 1998-79622 19980327
 IC ICM G01N033-68
 ICS G01M003-20; G01N033-538; G01N033-543; H01J049-26
 AB WO 9950669 A UPAB: 19991201
 NOVELTY - Method for screening for compounds with affinity for target receptors uses frontal **chromatography** and mass **spectrometry**.
 DETAILED DESCRIPTION - (A) Method for screening a compound library to determine the relative or absolute affinity of putative ligands to a target receptor (TR) or TRs comprises:

- (a) providing a compound library comprising putative ligands;
- (b) applying the compound library to a column comprising a TR or TRs, each TR optionally bound to a solid phase support, under frontal **chromatography** conditions to provide an effluent;
- (c) continuously or intermittently applying the effluent to a mass **spectrometer** to provide mass spectra of the constituent putative ligands present in the effluent; and
- (d) evaluating the mass spectra to determine a break through time for the putative ligands.

 INDEPENDENT CLAIMS are also included for:

- (1) a method for screening compound libraries to determine the relative affinity of putative ligands in each library to a TR or TRs, comprising: (a) step (a) and (b) as in (A); (b) intermittently applying the effluent from each column to a mass **spectrometer** to provide spectra of the constituent putative ligands present in the effluent; and (d) evaluating the mass spectra to determine a break through time for the putative ligands in each compound library;
- (2) a method for screening a compound library to determine the relative affinity of putative ligands to a TR or TRs relative to an indicator compound or compounds, comprising: (a) providing a compound library comprising putative ligands; (b) providing at least one void marker compound; (c) providing an indicator compound or compounds for each TR, each indicator compound having a pre-determined affinity for the TR and a pre-determined break through time on the column in the absence of the compound library relative to a void marker compound; (d) applying the compound library to a column comprising a TR or TRs, each TR optionally bound to a solid phase support, under frontal **chromatography** conditions to equilibrate or partially equilibrate the column with the compound library; (e) applying (i) a mixture comprising the compound library, the void marker compound and the indicator compound or compounds, or (ii) the void marker compound and the indicator compound or compounds, to the column under frontal **chromatography** to provide an effluent; (f) analyzing the effluent to determine a break through time for the indicator compound or compounds;

(3) a method for screening a compound library to determine the relative affinity of putative ligands to a TR relative to an indicator compound having a pre-determined affinity for the TR, comprising: (a) steps (a)-(d) as in (2); (b) applying a mixture comprising the compound library and the indicator compound to the column under frontal **chromatography** conditions to provide an effluent; (c) analyzing the effluent to determine a break through time and/or signal intensity for the indicator compound;

(4) a method for screening a compound library to identify inhibitors of a TR, comprising: (a) providing a compound library comprising putative ligands; (b) applying the compound library to a column comprising a TR optionally bound to a solid phase support under frontal **chromatography** conditions to equilibrate or partially equilibrate the column with the compound library; (c) providing a first indicator compound which is capable of being chemically modified by the TR to form a second indicator compound; (d) applying (i) a mixture comprising the compound library and the first indicator compound, or (ii) the first indicator compound, to the column under frontal **chromatography** conditions to provide an effluent; (e) analyzing the effluent to determine the presence and/or concentration of the second indicator compound;

(5) a method for screening a TR or TRs to determine the relative affinity of the receptor or receptors to an immobilized ligand or ligands relative to an indicator compound or compounds, comprising: (a) providing a TR or TRs; (b) providing a column comprising a ligand or ligands, each bound to a solid phase support; (c) providing at least one void marker compound; (d) providing an indicator compound or compounds for each ligand, each indicator compound having a pre-determined affinity for the ligand and having a pre-determined break through time on the column relative to a void marker compound; (e) applying the TR or TRs to the column under frontal **chromatography** conditions to equilibrate or partially equilibrate the column with the TRs or receptors; (f) applying (i) a mixture comprising the TR or TRs, the void marker compound and the indicator compound or compounds, or (ii) the void marker compound and the indicator compound or compounds, to the column under frontal **chromatography** conditions to provide an effluent; (g) analyzing the effluent to determine a break through time for the indicator compound or compounds.

USE - The methods can be used for identifying compounds which bind to TRs and determine the relative affinity for the TRs.

ADVANTAGE - Using the methods, an accurate ranking of the relative affinity of each member of the compound library for the target receptor can be ascertained. Several frontal **chromatography**-mass **spectrometry** (FC-MS) assays can be conducted simultaneously using a single mass **spectrometer** to intermittently monitor each column.

Dwg.0/16

FS	CPI EPI
FA	AB; DCN
MC	CPI: B03-A; B04-B01B; B04-B03; B04-C01; B04-E01; B04-F01 ; B04-F08; B04-F10; B04-F11; B04-G01; B04-H01; B04-J01; B04-J02; B04-K01; B04-L01; B04-N04; B04-N06; B06-F03; B11-C07B3; B11-C08A; B11-C08D2; B11-C08E3; B12-K04 ; D05-A01C1; D05-A02; D05-A03A; D05-H09 ; D05-H10; D05-H12; J04-B01A; J04-B01C EPI: S03-E09C7B; S03-E10A; S03-E14H ; S03-E14H4 ; V05-J01A1; V05-J01K

L54 ANSWER 2 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1999-591376 [50] WPIDS

DNN N1999-436153 DNC C1999-172814

TI **Electrospray** device for mass spectrometer,.

DC J04 S03 V05

IN HINDSGAUL, O; SCHRIEMER, D C

PA (SYNS-N) SYNSORB BIOTECH INC

CYC 86

PI WO 9950667 A1 19991007 (199950)* EN 28p G01N033-68 <--

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL

OA PT SD SE SL SZ UG ZW
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB
 GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU
 LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR
 TT UA UG US UZ VN YU ZA ZW

ADT WO 9950667 A1 WO 1999-CA264 19990326

PRAI US 1998-69656 19980429; US 1998-79622 19980327

IC ICM **G01N033-68**

ICS B01D059-44; G01M003-20; G01N033-538; G01N033-543; H01J049-02;
 H01J049-10; H01J049-26

AB WO 9950667 A UPAB: 19991201

NOVELTY - The **electrospray** device has a number of **electrospray** needles (10) mounted on a support in a circular arrangement. The needles can be connected to a number of sample streams for delivery of droplets of the sample streams to a mass spectrometer orifice (22). A rotatable member directs droplets from one sample stream at a time to the orifice. A charger applies a charge to the droplets of the sample stream and causes ions to be focused into a beam passing through the orifice.

DETAILED DESCRIPTION - Preferred Features: Preferably the needles are mounted on a rotatable disk (12) with their axes parallel and in a radial arrangement. An INDEPENDENT CLAIM is included for a method of delivering a number of sample streams to a mass spectrometer for sequential analysis.

USE - For delivering multiple liquid sample streams to a mass spectrometer, such as for analysis of compound libraries.

ADVANTAGE - This **electrospray** device enables streams from multiple chromatography columns or other sample sources to be easily connected for intermittent analysis, and can move from one sample to another automatically to analyze a number of samples in as short a time as possible.

DESCRIPTION OF DRAWING(S) - The drawing shows a side view of a multiple needle **electrospray** apparatus for delivery of sample streams to a mass spectrometer.

Electrospray needles 10

Rotatable plate 12

Mass spectrometer entry orifice 22

Dwg.1/8

FS CPI EPI

FA AB; GI

MC CPI: J04-B01A

EPI: S03-E09C7B; S03-E10A; S03-E13B1; S03-E14H; V05-J01A1; V05-J01K

L54 ANSWER 3 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1999-527189 [44] WPIDS

DNN N1999-390515 DNC C1999-154792

TI New inhibitors of serine protease useful for treating inflammation.

DC B04 D16 S03

IN **FORSSMANN, W; KREUTZMANN, P; MAEGERT, H; STAENDKER, L**

PA (FORS-I) FORSSMANN W

CYC 21

PI WO 9933974 A1 19990708 (199944)* DE 40p C12N015-12

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
 W: CA JP US

DE 19800363 A1 19990715 (199944) C07K014-81

ADT WO 9933974 A1 WO 1998-EP8424 19981223; DE 19800363 A1 DE 1998-19800363
 19980108

PRAI DE 1998-19800363 19980108; DE 1997-19757572 19971223

IC ICM C07K014-81; C12N015-12

ICS A61K031-70; A61K038-55; A61K038-57; A61K039-395; A61K048-00;
 C07H021-04; C07K016-38; C12N015-11; C12N015-15; **G01N033-68**

AB WO 9933974 A UPAB: 19991026

NOVELTY - Serine protease inhibitor (I) includes a domain with four Cys residues with the numbers of amino acids (aa) between the first (Cys1) and second (Cys2), the second and third (Cys3), and the third and fourth (Cys4) being 13, 18 and 2, respectively.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the

following:

- (1) nucleic acid (II) that encodes (I);
- (2) pharmaceutical composition containing (I) and/or (II), optionally also a carrier;
- (3) antibody (Ab), or its fragments, directed against epitopes on (I);
- (4) antisense poly- or oligo-nucleotides (III) that hybridize under stringent conditions to (I)-encoding cDNA or RNA, and optionally inhibiting expression of the corresponding genes;
- (5) diagnostic and pharmaceutical compositions containing Ab, or its fragments, and/or (III); and
- (6) DNA encoding (I) and/or RNA involved in transcription or translation of (I).

ACTIVITY - Antiinflammatory.

MECHANISM OF ACTION - Inhibition of serine proteases such as trypsin. The 65 aa inhibitor designated HF7665, at 75 μg/ml, caused about 30% inhibition of trypsin when tested in pH 7.5 buffer with N alpha -benzoyl-L-Arg-p-nitroanilide as substrate.

USE - (I) are used to treat acute or chronic cervical inflammation, inflammation of the Bartholin glands and other vaginal regions, tonsillitis, pharyngitis, laryngitis, inflammation involving excessive secretion of mucus (including acute, emergency episodes), post-operative bleeding as a result of excessive fibrinolysis, and for preventing pulmonary emphysema caused by lack of alpha 1-proteinase inhibitor. (I) may also be used to raise antibodies (Ab) and Ab or antisense nucleic acid directed against sequences that encode (II) can be used as diagnostic agents, also therapeutically in cases of overexpression of (I).

Dwg.0/3

FS CPI EPI
 FA AB; DCN
 MC CPI: B04-C01G; B04-E02F; B04-E03F; B04-G01; B12-K04; B14-C03; B14-D03;
 B14-D07C; B14-K01; B14-N05; B14-N14; D05-H09; D05-H11; D05-H12A;
 D05-H12D2
 EPI: **S03-E14H**

L54 ANSWER 4 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1999-312406 [26] WPIDS
 DNN N1999-233324 DNC C1999-092182
 TI Mass spectrometry detection of polypeptides useful for determining genetic predisposition to Huntington's disease and prostate cancer.
 DC B04 D16 J04 S03
 IN HIGGINS, G S; KOESTER, H; LITTLE, D; LOUGH, D
 PA (SEQUON) SEQUENOM INC
 CYC 81
 PI WO 9912040 A2 19990311 (199926)* EN 69p G01N033-68 <--
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
 OA PT SD SE SZ UG ZW
 W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE
 GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG
 MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG
 UZ VN YU ZW
 AU 9891298 A 19990322 (199931) G01N033-68 <--
 ADT WO 9912040 A2 WO 1998-US18311 19980902; AU 9891298 A AU 1998-91298
 19980902
 FDT AU 9891298 A Based on WO 9912040
 PRAI US 1997-922201 19970902
 IC ICM **G01N033-68**
 AB WO 9912040 A UPAB: 19990707
 NOVELTY - Process (M1) for determining the identity of a target polypeptide (P1), using mass spectrometry (MS) to determine the molecular mass (MW), and comparing this with molecular mass of a known polypeptide, is new.
 DETAILED DESCRIPTION - M1 comprises:
 (a) obtaining the polypeptide by in vitro translation, or transcription then translation, of a nucleic acid encoding the polypeptide;

(b) determining the MW of at least one of the obtained fragments by MS; and

(c) comparing the fragment(s) MW with the MW of fragments of a corresponding known polypeptide.

INDEPENDENT CLAIMS are also included for the following:

(1) a kit for determining the identity of (P1) by MS;

(2) a method for screening for or identifying a subject having or predisposed to a disease or condition, comprising:

(a) obtaining a target polypeptide which is a marker for the disease from a biological sample of subject, either directly or via nucleic acid;

(b) determining the MW of the target polypeptide by MS;

(c) comparing the MW of the target with a corresponding known polypeptide;

(3) a process for determining the amino acid sequence of a polypeptide using MS, comprising:

(a) contacting the polypeptide with an agent that cleaves an amino acid from the polypeptide terminus to produce a cleaved amino acid and a deletion fragment;

(b) subjecting the cleaved amino acid or the deletion fragment to MS; and

(c) repeating steps (a) and (b) as necessary to determine the polypeptide sequence; and

(4) a process for determining a nucleotide sequence of an unknown polynucleotide using MS, comprising:

(a) determining the amino acid sequence of a polypeptide encoded by the unknown polynucleotide using the method of (3);

(b) comparing the amino acid sequence to an amino acid sequence encoded by a corresponding known polynucleotide.

USE - The methods are used to detect the presence or disposition for genetic diseases or conditions particularly those caused by an abnormal number of trinucleotide repeats in a gene, such as Huntington's disease, prostate cancer, Fragile X syndrome type A, myotonic dystrophy type I, Kennedy disease, Machado-Joseph disease, and dentatorubral or pallidoluysian atrophy, spino bulbar muscular atrophy or ageing, and also for genotyping, in forensic analysis and parental testing, where the nucleotide repeats, preferably di-, tri-, tetra-, or penta-nucleotide repeats, are quantified (claimed).

ADVANTAGE - Unlike prior art identification by nucleic acid probe, the invention does not require labeling of the nucleic acid, and unlike gel electrophoresis, where size of the polynucleotide cannot be directly related to mobility in the gel matrix, the invention allows reliable measurement of the encoded product which can then be related back to the polynucleotide. Mass spectrometry of the encoded polypeptide is advantageous over mass spectrometry of the polynucleotide, as nucleic acids are difficult to volatilize.

FS CPI EPI

FA AB; DCN

MC CPI: B04-C01; B11-C08A; B12-K04; D05-H09; D05-H10; D05-H11; D05-H12D1;
D05-H18B; J04-B01A

EPI: S03-E10A; S03-E14H; S03-E14H5

L54 ANSWER 5 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1999-278856 [24] WPIDS

DNN N1999-208995 DNC C1999-082121

TI Gene for murine odorant binding protein.

DC B04 C06 D16 P14 S03

IN FORSSMANN, W; MAEGERT, H

PA (FORS-I) FORSSMANN W

CYC 1

PI DE 19756678 C1 19990520 (199924)* 17p C12N015-12

ADT DE 19756678 C1 DE 1997-19756678 19971219

PRAI DE 1997-19756678 19971219

IC ICM C12N015-12

ICS A01K067-027; C07H021-04; C12Q001-68; G01N033-68

AB DE 19756678 C UPAB: 19990624

NOVELTY - Gene (I), has a 7367 bp sequence reproduced, that encodes the

mouse odorant binding protein (II), or its allelic variants.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a transgenic rodent defective in (I).

ACTIVITY - None given.

MECHANISM OF ACTION - None given.

USE - (I) is used to design nucleic acids (particularly intron/exon junction segments) for 'switching off' the gene in rodents. Transgenic animals with a defect in (I) are used (i) to investigate fertility disorders and (ii) to identify pheromones or their transport proteins. Administration of (II), or its expression in vivo from cDNA corresponding to (I), can be used to study the effect of (II) on fertility.

FS CPI EPI GMPI

FA AB; DCN

MC CPI: B04-E01; C04-E01; D05-H12D; D05-H13

EPI: S03-E14H

L54 ANSWER 6 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1998-521398 [44] WPIDS

DNN N1998-407161 DNC C1998-156695

TI **Detection of low molecular weight**

analytes - uses recombinant antibody fragments in homogeneous competition immunoassays.

DC A86 B04 C07 D16 E19 H04 J04 S03

IN GRANT, S; HARRIS, W; PORTER, A

PA (GRAN-I) GRANT S; (HARR-I) HARRIS W; (PORT-I) PORTER A

CYC 19

PI WO 9841871 A1 19980924 (199844)* EN 22p G01N033-563

RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: JP US

ADT WO 9841871 A1 WO 1998-GB733 19980311

PRAI GB 1997-5376 19970314

IC ICM G01N033-563

ICS G01N033-68

AB WO 9841871 A UPAB: 19981210

Detection and measurement of **low molecular weight** (mol. wt.) analytes is carried out by incorporating recombinant antibody fragments (rAbFs) in homogenous competition immunoassays. Also claimed is a kit for carrying out the above mentioned method, where the kit is disposed in or on a contact surface and means for performing competitive or non-competitive ELISA assays or biosensor measurements.

The process is used for small mol. wt. analytes which can be trapped between capture and detector antibodies, e.g. pesticides, herbicides, insecticide drugs, oestrogenic mimetics, petroleum products, alkylphenolics, phthalates and organochlorines (all claimed).

ADVANTAGE - The immunoassay, using recombinant antibody fragments, provides improved sensitivity and specificity.

Dwg.0/7

FS CPI EPI

FA AB; DCN

MC CPI: A12-L04B; A12-V03C2; B04-G01; B07-D13; B10-C02; B10-C04C; B10-E02; B10-G02; B10-H02E; B10-H02F; B11-C07; B12-K04; D05-H09; D05-H11; H04-E; J04-B01

EPI: S03-E14H; S03-E14H4

L54 ANSWER 7 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1998-467556 [40] WPIDS

DNN N1998-364295 DNC C1998-141827

TI New human neutrophil-lymphocyte peptide and its fragments -- used for treatment and diagnosis of inflammatory diseases, tumours and disorders of haematopoietic maturation.

DC B04 D16 S03

IN FORSSMANN, W; KLEEMEIER, B; NEHLS, M; SCHULZ-KNAPPE, P

PA (FORSS-I) FORSSMANN W

CYC 19

PI WO 9837191 A1 19980827 (199840)* DE 41p C12N015-12

RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
 W: JP US
 DE 19730786 A1 19990121 (199909) C07K016-00
 DE 19730786 C2 19991111 (199952) C07K014-435
 ADT WO 9837191 A1 WO 1998-EP950 19980219; DE 19730786 A1 DE 1997-19730786
 19970718; DE 19730786 C2 DE 1997-19730786 19970718
 PRAI DE 1997-19730786 19970718; DE 1997-19706937 19970220; DE 1997-19712487
 19970325
 IC ICM C07K014-435; C07K016-00; C12N015-12
 ICS A61K038-12; A61K038-17; A61K048-00; C07H021-00; C07K001-04;
 C07K001-18; C07K001-36; C07K007-64; C07K014-47; C07K016-18;
 C12N001-00; C12N005-10; C12N015-11; C12N015-63; C12N015-85;
 C12N015-86; C12Q001-68; G01N033-68
 AB WO 9837191 A UPAB: 19981111
 Peptides of formula (I) are new: Ra-C-Xn-C-Rd (I) Ra = amino or its derivative, or an oligo- or poly-peptide made from natural amino acids (aa), derivatives modified in the side chain and/or their stereoisomers; n = 3-7; X = natural aa as above; Rd = carboxy, its derivative or oligo- or poly-peptide as above. Also new are (1) nucleic acid (II) encoding (I), or its fragments, derivatives and analogues; (2) vectors containing (II); (3) host cells containing this vector; (4) DNA that hybridises with (II) and encodes a polypeptide with human neutrophil-lymphocyte peptide (hNLP) activity; (5) antibody (Ab), antagonist or inhibitor directed against (I); (6) antisense oligonucleotide (AON) that inhibits hNLP expression; (7) vector for producing knock-out mice as a chronic model of maturation disorders of the haematopoietic system.
 USE - (I) and (II) are used to treat inflammatory disease, tumours and disorders of haematopoietic proliferation and maturation, while Ab, antagonists, inhibitors and AON are used to treat infections, inflammation, and proliferative or neoplastic diseases of e.g. the respiratory or gastrointestinal (GI) tracts, urogenital systems and particularly the haematopoietic system. (I) and Ab are also used diagnostically to detect diseases of bone marrow, lymphatic organs, the GI tract and immune systems, also inflammatory and neoplastic disease. (I) is an anti-proliferative agent similar to known interleukins.
 Dwg.0/0
 FS CPI EPI
 FA AB; DCN
 MC CPI: B04-C01F; B04-E05; B04-E08; B04-L05; B11-C07A; B12-K04A; B14-C03;
 B14-E10; B14-H01; B14-H01B; B14-N07; D05-H09; D05-H11; D05-H12A;
 D05-H12D2; D05-H12E; D05-H14; D05-H16A; D05-H17A
 EPI: S03-E14H
 L54 ANSWER 8 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1998-159670 [14] WPIDS
 CR 1998-131295 [13]
 DNN N1998-126827 DNC C1998-051622
 TI Determining status of organism by measuring **low molecular weight** peptide(s) - indicative of status, particularly for diagnosis, toxicological analysis, identifying gene products etc..
 DC B04 C07 D16 S03
 IN FORSSMANN, W; OPITZ, H; SCHRADER, M;
 SCHULZ-KNAPPE, P
 PA (FORSS-I) FORSSMANN W; (BIOV-N) BIOVISION GMBH & CO KG
 CYC 71
 PI WO 9807036 A1 19980219 (199814)* DE 23p G01N033-68 <--
 RW: AT BE CH DE DK EA ES FI FR GB GH GR IE IT KE LS LU MC MW NL OA PT
 SD SE SZ UG ZW
 W: AL AU BA BB BG BR BY CA CN CU CZ DE EE GE HU IL IS JP KP KR LC LK
 LR LT LV MG MK MN MX NO NZ PL RO SG SI SK SL TR TT UA US UZ VN YU
 AU 9742988 A 19980306 (199830) G01N033-68 <--
 EP 922226 A1 19990616 (199928) DE G01N033-68 <--
 R: AT BE CH DE DK ES FR GB IE IT LI LT LU LV NL PT RO SE SI
 ADT WO 9807036 A1 WO 1997-EP4396 19970813; AU 9742988 A AU 1997-42988
 19970813; EP 922226 A1 EP 1997-918977 19970813, WO 1997-EP4396 19970813

FDT AU 9742988 A Based on WO 9807036; EP 922226 A1 Based on WO 9807036
 PRAI DE 1997-19725362 19970616; DE 1996-19632521 19960813

IC ICM G01N033-68

AB WO 9807036 A UPAB: 19980406

Determining the status of an organism comprises direct measurement and characterisation of indicative **low molecular weight** (mol. wt.) peptides (I) in a sample and comparing the results with a reference. The sample from the organism contains (I) and high mol. wt. peptides.

USE - The method is used for hypothesis-free investigations of the status of the whole organism; for detecting any anomalies from the reference condition and, for transfected organisms, identification of potentially toxic peptides associated with altered metabolism caused by the transfection.

Typical applications are in clinical studies (identifying disease states); toxicological analysis; determination of breakdown products and identification of gene products, in human or veterinary medicine.

ADVANTAGE - The method is universally applicable (including use on lower organisms) and is easily set up using standard procedures. Single, or many (I), can be detected directly; contrast indirect methods such as immunoassays.

Dwg.0/0

FS CPI EPI

FA AB

MC CPI: B04-F01; C04-F01; B04-N04; C04-N04; B12-K04A;
 C12-K04A; D05-H09

EPI: S03-E14H

L54 ANSWER 9 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1998-131295 [13] WPIDS

CR 1998-159670 [14]

DNN N1998-103636 DNC C1998-043465

TI **Isolating** peptide(s) from body fluids, tissues and cell supernatant - by ultrafiltration then **chromatography**, particularly for identifying compounds characteristic of disease.

DC B04 D16 J04 S03

IN FORSSMANN, W; OPITZ, H; SCHULZ-KNAPPE, P

PA (FORS-I) FORSSMANN W

CYC 1

PI DE 19632521 A1 19980219 (199813)* 5p C07K014-435

ADT DE 19632521 A1 DE 1996-19632521 19960813

PRAI DE 1996-19632521 19960813

IC ICM C07K014-435

ICS C07K001-18; C07K001-34; G01N033-53; G01N033-68

AB DE 19632521 A UPAB: 19980406

Production of peptide fractions (A) from body fluids, tissue or cell supernatant comprises ultrafiltration (UF); ion-exchange extraction (IEE); pH elution; reverse-phase separation and freeze-drying.

USE - The method is used:

- (i) to map peptides from fluids or tissues;
- (ii) to prepare samples for chromatography/mass spectrometric (MS) analysis for comparative analysis of peptide spectra;
- (iii) to identify peptide markers of disease;
- (iv) to purify peptides defined by mapping;
- (v) for diagnosis, from changes in the peptide spectrum, of tumours, systemic, cardiac-circulatory or immune system diseases, or osteoporosis, or
- (vi) to develop detection methods for peptides (such as enzyme-linked immunosorbent assay, radioimmunoassay and liquid chromatography/MS (LC-MS)).

Dwg.0/0

FS CPI EPI

FA AB

MC CPI: B04-C01; B11-C07; B11-C08; B12-K04A; D05-H13; J04-B
 EPI: S03-E14H; S03-E14H4

L54 ANSWER 10 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1998-053368 [06] WPIDS
 DNN N1998-042165 DNC C1998-018496
 TI Diagnostic detection of pathogenic point mutation(s) - in e.g. heart disease, by protein analysis of expressions of prepared biopsies.
 DC B04 D16 S03
 IN BRENNER, B; FORSSMANN, W; NIER, V; RAIDA, M
 PA (FORS-I) FORSSMANN W; (HAEM-N) HAEMOPEP PHARMA GMBH
 CYC 20
 PI DE 19624802 A1 19980102 (199806)* 4p C12Q001-24
 WO 9749993 A1 19971231 (199807) DE 29p G01N033-68 <--
 RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
 W: JP US
 EP 914615 A1 19990512 (199923) DE G01N033-68 <--
 R: AT CH DE FR GB IT LI
 ADT DE 19624802 A1 DE 1996-19624802 19960621; WO 9749993 A1 WO 1997-EP3241 19970620; EP 914615 A1 EP 1997-929238 19970620, WO 1997-EP3241 19970620
 FDT EP 914615 A1 Based on WO 9749993
 PRAI DE 1996-19624802 19960621
 IC ICM C12Q001-24; G01N033-68
 ICS G01N021-00; G01N030-72
 AB DE 19624802 A UPAB: 19980209
 The following are claimed:
 (1) ''use of the described method according to the invention for medical-diagnostic detection of the expression and incorporation of wild type besides mutants at the protein level in preparations that have been obtained from biopsies of human or animal tissue'';
 (2) ''use of the described method for medical-diagnostic quantification of the expression and incorporation in physiologically functional structures of wild type and mutants at the protein level'';
 (3) ''use of the described method for the medical-diagnostic analysis of the expression and incorporation and the ratio of wild type to mutants in various tissue and organ regions'';
 (4) ''use of the method for medical-diagnostic analysis of biopsy samples that are present in only very small amounts'',
 (5) ''use of the described method for medical-diagnostic detection of previously unknown pathogenic and non-pathogenic mutations directly at the protein level''.
 N.B. No specific method has been provided.
 USE - The methods are used to detect point mutations in proteins of human and animal organisms by analysing the heavy chains of the beta-isoform of muscle myosin using chemical and physical methods.
 ADVANTAGE - The methods are far shorter in duration (1 week) than DNA analysis (many weeks).
 Dwg.0/0
 FS CPI EPI
 FA AB
 MC CPI: B04-E03; B04-N04; B11-C; B12-K04A; D05-H09
 EPI: S03-E10A; S03-E14H

L54 ANSWER 11 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1997-514492 [48] WPIDS
 DNN N1997-427947 DNC C1997-164493
 TI Protein HF-COLL-18/514cf - useful for treating, e.g. diseases of supporting or connective tissue, respiratory or urogenital tract or of the cardiovascular or nervous system.
 DC B04 D16 S03
 IN FORSSMANN, W; RAIDA, M; SCHRADER, M;
 SCHULZ-KNAPPE, P; STANDKER, L; FORSSMANN, W G;
 STAENDKER, L
 PA (FORS-I) FORSSMANN W; (HAEM-N) HAEMOPEP PHARMA GMBH
 CYC 69
 PI DE 19615710 A1 19971023 (199748)* 6p C07K014-78
 WO 9740073 A2 19971030 (199749) DE 18p C07K014-78
 RW: AT BE CH DE DK EA ES FI FR GB GH GR IE IT KE LS LU MC MW NL OA PT
 SD SE SZ UG

W: AL AU BA BB BG BR CA CN CU CZ EE GE GH HU IL IS JP KG KP KR LC LK
 LR LT LV MG MK MN MX NO NZ PL RO SG SI SK TR TT UA US UZ VN YU
 AU 9727665 A 19971112 (199811) C07K014-78
 WO 9740073 A3 19971224 (199817) C07K014-78
 EP 896584 A2 19990217 (199912) DE C07K014-78
 R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
 ADT DE 19615710 A1 DE 1996-19615710 19960422; WO 9740073 A2 WO 1997-EP2012
 19970422; AU 9727665 A AU 1997-27665 19970422; WO 9740073 A3 WO
 1997-EP2012 19970422; EP 896584 A2 EP 1997-921682 19970422, WO 1997-EP2012
 19970422
 FDT AU 9727665 A Based on WO 9740073; EP 896584 A2 Based on WO 9740073
 PRAI DE 1996-19615710 19960422
 REP No-SR.Pub; 3.Jn1.Ref; DE 3633797; WO 9316716; WO 9715666
 IC ICM C07K014-78
 ICS A61K038-39; A61K039-395; C07K001-16; C07K016-18; G01N033-53;
G01N033-68
 AB DE 19615710 A UPAB: 19971209
 Protein HF-COLL-18/514cf with the N-terminal amino acid sequence (A) is new: Val-Ala-Arg-Asn-Ser-Pro-Leu-Ser -Gly-Gly-Met-Arg-Gly-Ile-Arg-Gly-Ala-Asp-Phe-Gln-Cys-Phe-Gln-Gln-Ala-Arg-Ala-Val-Gly-Leu (A). Natural and pharmacologically acceptable derivatives of (A) are also included, especially amidated, acetylated, phosphorylated and glycosylated derivatives, and natural and synthetic fragments with biological activity derived from the amino acid sequence of HF-COLL-18/514cf.
 USE - Medicaments containing HF-COLL-18/514cf or its derivatives or fragments are useful for treating human diseases, especially involving supporting or connective tissue, the respiratory or urogenital tract, the cardiovascular or nervous system, the integuments or the sense organs. The medicaments are also used for treating systemic diseases with overproduction or deficiency of HF-COLL-18/514cf, especially with e.g. use of antibodies raised against this or HF-COLL-18/514cf for substitution therapy. The protein, in a suitable form, can also be used to treat chronic diseases involving electrolyte action in diseases on the bone reconstruction (osteoporosis) or at the dental apparatus. The protein is also used for diagnosis of diseases by producing specific antibodies against synthetic fragments or the entire peptide or its derivatives and its fragments and measuring the blood concentration of HF-COLL-18/514cf via an immunoassay.
 Dwg.0/0
 FS CPI EPI
 FA AB; DCN
 MC CPI: B04-N02; B14-F01B; B14-J01; B14-K01; B14-N07C; D05-H09; D05-H11;
 D05-H17A6
 EPI: **S03-E14H4**
 L54 ANSWER 12 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1997-274921 [25] WPIDS
 DNN N1997-227696 DNC C1997-088519
 TI **Structural analysis** of analyte ions using a time-of-flight mass spectrometer - involves analyte ions entering fragmentation zone as divergent ion beam, after which an Einzel lens focusses spontaneously decaying ions onto an ion detector as opposed to metastable daughter ions.
 DC B04 J04 S03 V05
 IN KOESTER, C
 PA (BRUK-N) BRUKER FRANZEN ANALYTIK GMBH
 CYC 3
 PI GB 2307782 A 19970604 (199725)* 15p H01J049-00
 DE 19544808 A1 19970605 (199728) 8p H01J049-46
 US 5734161 A 19980331 (199820) 8p H01J049-40
 ADT GB 2307782 A GB 1996-24948 19961129; DE 19544808 A1 DE 1995-19544808
 19951201; US 5734161 A US 1996-757895 19961127
 PRAI DE 1995-19544808 19951201
 IC ICM H01J049-00; H01J049-40; H01J049-46
 ICS G01N027-62; **G01N033-68**
 AB GB 2307782 A UPAB: 19970619

The structural analysis of analyte ions using a time-of-flight **mass spectrometer** involves measuring daughter ions which are generated from a beam of analyte ions in a fragmentation zone (19) by high-energy collisions with gas molecules.

The method involves: (a) causing the analyte ions to enter the fragmentation zone as a divergent ion beam, which is not focused onto the ion detector, and (b) providing an Einzel lens (4-6) adjacent the fragmentation zone to focus the spontaneously decaying ions, which have lower kinetic energies than the unfragmented ions, onto the ion detector, in order to favour detection of daughter ions formed by spontaneous decay, as compared with daughter ions formed by metastable decay taking place at a later stage in the **mass spectrometer**.

Also claimed is an appts. for performing the above method.

USE - For the structural analysis of large molecules e.g. chain molecules such as peptides and proteins.

ADVANTAGE - Enables spontaneously generated daughter ions and delayed metastable resulting daughter ions to be measured separately thus enabling recognition and measurement of e.g. D and W (i.e. N-terminal and C-terminal) ions, and enables measurement of even granddaughter ions from spontaneously formed daughter ions without interference, due to use of e.g. electrostatic energy filtration using a short Einzel lens directly behind the collision zone to differentiate between spontaneous and delayed ion fragmentation. Enables e.g. determinn. of whether a terminal amino acid is leucine or isoleucine, even though they both has the same **mass**, because their D-ions have different **masses**.

PREFERRED METHOD - A time-of-flight **mass spectrometer** with a **matrix-assisted laser (8) desorption and ionisation (MALDI)** ion source is used. The divergence of the ion beam is generated by the effect of the lateral velocities gained by the ions (12) in the **MALDI** process. An ion source (1-3) with grid-less apertures (10,11) is employed. The appts. includes an ion reflector to analyze the energy of ions, and thus scan the daughter ion spectra. The electric acceleration field in front of the sample support (1) can be switched on with a time delay relative to the **laser** light flash of the **MALDI** ion source. The fragmentation zone is a collision cell filled with a collision gas cloud (19) having a pressure of from 10-3 to 10-1 millibars, formed in the vacuum system of the **mass spectrometer** in front of a gas supply nozzle(17), which supplies gas in pulses.

In subsequently acquired daughter ion spectra, spontaneously fragmented and unfragmented ions are measured by the detector in an alternating fashion, thus distinguishing spontaneously generated daughter ions from ions generated by metastable decay, the alternating measurements being obtained by changes of the focusing voltage at the Einzel lens and/or by changes of the supply of collision gas. Daughter ions of relatively low kinetic energy generated by spontaneously decay, are discriminated from daughter ions of relatively high kinetic energy generated by metastable decay.

Dwg.1/2

FS CPI EPI
 FA AB; GI
 MC CPI: B04-N04; B11-C08A; B12-K04; J04-B01A
 EPI: S03-E10A3; S03-E14H5; V05-J01A1; V05-J01G

L54 ANSWER 13 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1995-246393 [32] WPIDS
 CR 1995-241503 [32]
 DNN N1995-191319 DNC C1995-113090
 TI New human circulating cytokine CC-1 and related nucleic acid - used to treat abnormal cell migration, tumours etc. also diagnostically isolated from haemofiltrate.
 DC B04 D16 S03
 IN FORSSMANN, W; MAGERT, H; MEYER, M; SCHULZ-KNAPPE, P;
 MAEGERT, H
 PA (FORS-I) FORSSMANN W

CYC 60
 PI WO 9518228 A1 19950706 (199532)* DE 25p C12N015-19
 RW: AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE SZ
 W: AM AU BB BG BR BY CA CN CZ EE FI GE HU JP KG KP KR KZ LK LR LT LV
 MD MG MN NO NZ PL RO RU SI SK TJ TT UA US UZ VN
 AU 9513849 A 19950717 (199544) C12N015-19
 DE 4427395 A1 19960208 (199611) 12p C07K014-00
 EP 736095 A1 19961009 (199645) DE C12N015-19
 R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
 AU 680714 B 19970807 (199740) C12N015-19
 JP 09510084 W 19971014 (199751) 22p C12N015-09
 ADT WO 9518228 A1 WO 1994-EP4282 19941222; AU 9513849 A AU 1995-13849
 19941222; DE 4427395 A1 DE 1994-4427395 19940803; EP 736095 A1 WO
 1994-EP4282 19941222, EP 1995-905105 19941222; AU 680714 B AU 1995-13849
 19941222; JP 09510084 W WO 1994-EP4282 19941222, JP 1995-517774 19941222
 FDT AU 9513849 A Based on WO 9518228; EP 736095 A1 Based on WO 9518228; AU
 680714 B Previous Publ. AU 9513849, Based on WO 9518228; JP 09510084 W
 Based on WO 9518228
 PRAI DE 1994-4427395 19940803; DE 1993-4344397 19931224
 REP 1.Jnl.Ref; WO 9313206
 IC ICM C07K014-00; C12N015-09; C12N015-19
 ICS A61K038-00; A61K038-19; A61K049-00; C07H021-04; C07K001-18;
 C07K001-20; C07K001-30; C07K014-52; C12P021-02; C12P021-08;
 C12Q001-68; G01N033-53; **G01N033-68**
 AB WO 9518228 A UPAB: 19950818
 Cytokine CC-1 of formula (I) is new. Also included are its fragments
 and/or derivs., esp. amidated, acetylated, phosphorylated and/or
 glycosylated derivs. TKTESSSRGPYHPSECCFTTYKIPRQRIMDYYETNSQCSKPGIVFITKRGH
 SVCTNPSDKWVQDYIKDMKEN (I) Also new are: (1) polynucleotides (II) encoding
 (I) or its fragments, (2) poly- or monoclonal antibodies specific for (II)
 or the cytokine CC-1 mRNA, and (3) probes (III) that hybridise with (II).
 A cDNA of 123 bp encoding part of (I) is reproduced in the specification.
 USE - (I) is useful for treating diseases involving abnormal cell
 migration, immune system diseases, tumours and aberrations of regulatory
 growth functions (claimed). (II) and its fragments can be used to express
 recombinant (I) or to detect (I)-encoding nucleic acid. Antibodies raised
 against (I) can be used diagnostically in usual ELISA or RIA.
 Dwg.0/4
 FS CPI EPI
 FA AB; DCN
 MC CPI: B04-E02B; B04-E05; B04-H01; B11-C08E5; B12-K04A; B12-K04F; B14-H01B;
 D05-H09; D05-H11; D05-H12A; D05-H12D1
 EPI: **S03-E14H4**
 L54 ANSWER 14 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1994-178855 [22] WPIDS
 DNN N1994-140821 DNC C1994-081691
 TI **Low mol. wt.** reducing agent for
 met-myoglobin - comprises nonionic material of molecular weight 1000 to
 3000 and optimum redn. pH about 6.
 DC B04 D16 S03
 PA (NAMI-I) NAMIKI H
 CYC 1
 PI JP 06118087 A 19940428 (199422)* 7p G01N033-68 <--
 ADT JP 06118087 A JP 1992-267251 19921006
 PRAI JP 1992-267251 19921006
 IC ICM **G01N033-68**
 AB JP 06118087 A UPAB: 19940722
 Reducing agent for metmyoglobin is non-anionic material of mol. wt.
 1000-3000 and optimum redn pH about 6.
 The reducing agent is obtd. from e.g. bovine myocardium. The
 myocardium is extracted, the extract liq. is fractionated by
 ultrafiltration and then liq. chromatography. The reducing agent has
low molecular weight (1000-3000), consequently
 the reducing agent is easily discharged into blood, which is effective for
 the determin. of metmyoglobin-reductase in muscular tissue.

USE/ADVANTAGE - By determining concn. of the reducing agent of metmyoglobin in blood or urine, the amt. of metmyoglobin reductase in muscular tissue is easily detected, consequently the diagnosis of motility load, alcoholism, carbon monoxide poisoning etc. is carried out.

In an example, the reducing agent of metmyoglobin was prep'd from bovine myocardium. The reducing agent exhibited high reducing power (high diaphorase activity).

Dwg.1/5

FS CPI EPI
 FA AB; GI
 MC CPI: B04-B04B1; B04-B04D5; B04-B04H; B04-L03D; B11-C08E3; B12-K04A;
 D05-H09
 EPI: S03-E14H5

L54 ANSWER 15 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1993-351872 [44] WPIDS
 DNN N1993-271377 DNC C1993-156239
 TI Detection of nitric oxide, S-nitroso-thiol cpds. and S-nitroso-proteins - by photolysis and measuring chemiluminescence after reaction with ozone.
 DC B04 S03
 IN LOSCALZO, J; STAMLER, J
 PA (BGHM) BRIGHAM & WOMENS HOSPITAL
 CYC 21
 PI WO 9321525 A1 19931028 (199344)* EN 28p G01N033-00
 RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
 W: AU CA JP
 AU 9341114 A 19931118 (199410) G01N033-00
 EP 591511 A1 19940413 (199415) EN G01N033-00
 R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
 JP 06510605 W 19941124 (199506) 9p G01N021-76
 EP 591511 A4 19940817 (199533) G01N033-00
 US 5459076 A 19951017 (199547) 11p G01N033-00
 AU 664276 B 19951109 (199601) G01N033-68 <--
 EP 591511 B1 19980204 (199810) EN 13p G01N021-63
 R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
 DE 69316818 E 19980312 (199816) G01N021-63
 ES 2114049 T3 19980516 (199826) G01N021-63
 ADT WO 9321525 A1 WO 1993-US3785 19930421; AU 9341114 A AU 1993-41114
 19930421; EP 591511 A1 EP 1993-910720 19930421, WO 1993-US3785 19930421;
 JP 06510605 W JP 1993-517831 19930421, WO 1993-US3785 19930421; EP 591511
 A4 EP 1993-910720 ; US 5459076 A US 1992-872237 19920422; AU
 664276 B AU 1993-41114 19930421; EP 591511 B1 EP 1993-910720 19930421, WO
 1993-US3785 19930421; DE 69316818 E DE 1993-616818 19930421, EP
 1993-910720 19930421, WO 1993-US3785 19930421; ES 2114049 T3 EP
 1993-910720 19930421
 FDT AU 9341114 A Based on WO 9321525; EP 591511 A1 Based on WO 9321525; JP
 06510605 W Based on WO 9321525; AU 664276 B Previous Publ. AU 9341114,
 Based on WO 9321525; EP 591511 B1 Based on WO 9321525; DE 69316818 E Based
 on EP 591511, Based on WO 9321525; ES 2114049 T3 Based on EP 591511
 PRAI US 1992-872237 19920422
 REP 1.Jnl.Ref; US 3967933; US 3973910; US 4368262; US 5094815; 2.Jnl.Ref; SU
 1464084; US 4272248; US 4775633
 IC G01N033-48
 ICM G01N021-63; G01N021-76; G01N033-00; G01N033-68
 ICS G01N030-74; G01N033-48; G01N033-52
 AB WO 9321525 A UPAB: 19931213
 (A) A method for detecting low mol. wt.
 S-nitrosothiols in a biological fluid sample is claimed, which comprises:
 (a) subjecting the sample to photolysis; (b) quantitating the amt. of
 nitric oxide (NO) in the sample by measuring the chemiluminescence signal
 (CLS) generated by a chemical reaction between NO and ozone; (c)
 inactivating the CLS-generating capability of any NO which is associated
 with a thiol in a separate sample of the biological fluid, e.g. by
 treatment with mercurous ion; (d) detecting the NO in the sample obtd. in
 step (c) using steps (a) and (b) and (e) determining the quantitative
 difference between the amt. of NO detected in steps (b) and (d) to

determine the amt. of S-nitrosothiols in the sample.

USE/ADVANTAGE - The method can be used for the sensitive detection of NO and permits its distinction from nitric oxide equivalents. The method can be used to detect and monitor disease states involving abnormal levels of nitric oxide and nitrosonium equivalents. It can be used to monitor septic shock, cardiogenic shock, hypovolemic shock, atherosclerosis, hyperhomocysteinemia, venous thrombosis, arterial thrombosis, coronary occlusion, pulmonary embolism, cerebrovascular accident, vascular fibrosis, ectopia lentis, osteoporosis, mental retardation, skeletal deformities, pulmonary hypertension, malignancy, infection and central nervous system disorders.

Dwg.1/3

FS CPI EPI
 FA AB; GI; DCN
 MC CPI: B04-B04D5; B05-C08; B10-A03; B12-K04A
 EPI: S03-E04E; S03-E14H

ABEQ US 5459076 A UPAB: 19951128

S-nitrosothiols in a biological fluid sample are detected, by (a) subjecting sample to photolysis; (b) measuring the amt. of NO present from the chemiluminescence signal generated from the reaction between NO and O₃; (c) inactivating chemiluminescence signal-generating capability of NO associated with thiol in a separate sample of fluid; (d) detecting NO in (c) using steps (a) and (b); and (e) determining the quantitative difference between NO detected in (b) and (d) to determine the amt. of S-nitrosothiol in the sample.

Pref., thiol is inactivated by treating sample with a mercurous ion.

USE - Used for monitoring NO bioactivity in normal physiological state and disease state, e.g., septic shock, atherosclerosis, thrombosis, hyperhomocysteinaemia, pulmonary hypertension, malignancy, infection, and CNS disorders.

Dwg.1/3

ABEQ EP 591511 B UPAB: 19980309

(A) A method for detecting **low mol. wt.**

S-nitrosothiols in a biological fluid sample is claimed, which comprises: (a) subjecting the sample to photolysis; (b) quantitating the amt. of nitric oxide (NO) in the sample by measuring the chemiluminescence signal (CLS) generated by a chemical reaction between NO and ozone; (c) inactivating the CLS-generating capability of any NO which is associated with a thiol in a separate sample of the biological fluid, e.g. by treatment with mercurous ion; (d) detecting the NO in the sample obtd. in step (c) using steps (a) and (b) and (e) determining the quantitative difference between the amt. of NO detected in steps (b) and (d) to determine the amt. of S-nitrosothiols in the sample.

USE/ADVANTAGE - The method can be used for the sensitive detection of NO and permits its distinction from nitric oxide equivalents. The method can be used to detect and monitor disease states involving abnormal levels of nitric oxide and nitrosonium equivalents. It can be used to monitor septic shock, cardiogenic shock, hypovolemic shock, atherosclerosis, hyperhomocysteinemia, venous thrombosis, arterial thrombosis, coronary occlusion, pulmonary embolism, cerebrovascular accident, vascular fibrosis, ectopia lentis, osteoporosis, mental retardation, skeletal deformities, pulmonary hypertension, malignancy, infection and central nervous system disorders.

Dwg.1/3

L54 ANSWER 16 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
 AN 1986-305118 [46] WPIDS
 DNN N1986-228056 DNC C1986-132293
 TI **Mol. wt.** determinn. of proteins - using
 immunoglobulin components as **mol. wt.** markers.
 DC A89 B04 J04 S03
 IN HEARN, M T W; MARLEY, P B
 PA (COMU) CIE FR MATERIEL COLORANTES; (COMW) COMMONWEALTH SERUM LAB COMMISS;
 (DAVI-I) DAVIES J R
 CYC 17
 PI WO 8606383 A 19861106 (198646)* EN 20p

RW: AT BE CH DE FR GB IT LU NL SE
 W: DK JP NO US

AU 8656888 A 19861106 (198651)
 NO 8605333 A 19870302 (198715)
 EP 221116 A 19870513 (198719) EN
 R: AT BE CH DE FR GB IT LI LU NL SE
 DK 8606344 A 19870302 (198751)
 JP 63500207 W 19880121 (198809)
 CA 1272938 A 19900821 (199039)

ADT WO 8606383 A WO 1986-AU118 19860430; EP 221116 A EP 1986-902779 19860430;
 JP 63500207 W JP 1986-502591 19860430

PRAI AU 1985-381 19850501; AU 1986-56888 19860430

REP 7.Jnl.Ref; AU 8319345; DE 3018901; EP 131836; SSR871104; US 4107014; US 4347179

IC C07K015-12; G01N033-68

AB WO 8606383 A UPAB: 19930922

Compns. (I) for use in the determ. of the mol. wt. of proteins comprises at least one protein or polypeptide of known mol. wt. selected from the gp. of Ig components consisting of the immuno-globulins, fragments and their polymers.

Also claimed is a method for detection and/or determination of the mol. wts. of one or more sample proteins comprising (a) simultaneously subjecting the sample proteins and (I) to electrophoretic resolution on a polymeric gel; and (b) detecting and comparing the resolved sample proteins and Ig components in order to detect or determine the mol. wts. of the sample proteins.

ADVANTAGE - The new mol. wt. markers can be detected on all supports. Detection of mol. wt. markers and sample protein is simultaneous and onlyone procedure is required. Detection of marker does not require the removal of lanes contg. the markers from the rest of the support.

O

FS CPI EPI

FA AB

MC CPI: A03-C01; A04-D04A1; A10-E12A; A12-L04; A12-S; A12-V03C2;
 B04-B04A; B04-B04C6; B04-C01; B11-C08D1; B12-K04E; J04-B01B
 EPI: S03-E14H4

L54 ANSWER 17 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1985-171361 [28] WPIDS

DNN N1985-128894 DNC C1985-074955

TI New peptide hormone cardiodilatine - from atrium tissue having effects on heart muscle ionotropy, smooth muscle, and sweat secretion.

DC B04 S03

IN FORSSMANN, W; FORSSMANN, W G

PA (FORS-I) FORSSMANN W; (FORS-I) FORSSMANN W-G; (ORGANOGEN MED MOL;
 (FORS-I) FORSMAN W G

CYC 12

PI WO 8502850 A 19850704 (198528)* DE 35p
 RW: AT BE CH DE FR GB LU NL SE
 W: JP US
 DE 3346953 A 19850814 (198534)
 EP 167575 A 19860115 (198603) DE
 R: AT BE CH DE FR GB LI LU NL SE
 JP 61500848 W 19860501 (198624)
 US 4751284 A 19880614 (198826)
 US 4782044 A 19881101 (198846)
 US 4895932 A 19900123 (199011)
 EP 167575 B1 19930526 (199321) DE 10p C07K007-10
 R: AT BE CH DE FR GB LI LU NL SE
 DE 3346953 C2 19930603 (199322) 5p C07K015-06
 DE 3486154 G 19930701 (199327) C07K007-10
 JP 07072146 A 19950317 (199520) 10p G01N033-53
 JP 08022876 B2 19960306 (199614) 16p C07K014-58
 JP 08224094 A 19960903 (199645) 9p C12P021-06
 EP 167575 B2 19991027 (199950) DE C07K014-58

R: AT BE CH DE FR GB LI LU NL SE

ADT WO 8502850 A WO 1984-DE279 19841221; DE 3346953 A DE 1983-3346953
 19831224; EP 167575 A EP 1985-900447 19841221; JP 61500848 W JP
 1985-500395 19841221; US 4751284 A US 1985-769627 19850820; US 4782044 A
 US 1988-140736 19880104; US 4895932 A US 1988-229706 19880808; EP 167575
 B1 WO 1984-DE279 19841221, EP 1985-900447 19841221; DE 3346953 C2 DE
 1983-3346953 19831224; DE 3486154 G DE 1984-3486154 19841221, WO
 1984-DE279 19841221, EP 1985-900447 19841221; JP 07072146 A Div ex JP
 1985-500395 19841221, JP 1994-2150 19841221; JP 08022876 B2 WO 1984-DE279
 19841221, JP 1985-500395 19841221; JP 08224094 A Div ex JP 1985-500395
 19841221, JP 1995-260453 19841221; EP 167575 B2 WO 1984-DE279 19841221, EP
 1985-900447 19841221

FDT EP 167575 B1 Based on WO 8502850; DE 3486154 G Based on EP 167575, Based
 on WO 8502850; JP 08022876 B2 Based on JP 61500848, Based on WO 8502850;
 EP 167575 B2 Based on WO 8502850

PRAI DE 1983-3346953 19831224

REP 2.Jnl.Ref; 3.Jnl.Ref

IC A61K035-34; A61K037-02; A61K049-00; C07K007-10; C07K015-12;
G01N033-68

ICM C07K007-10; C07K014-58; C07K015-06; C12P021-06; G01N033-53
 ICS A61K035-34; A61K037-02; A61K038-17; A61K049-00; C07K007-06;
 C07K007-08; C07K015-12; **G01N033-68**

ICA A61K038-00; A61K038-22; A61K039-395; C07K016-26
 AB WO 8502850 A UPAB: 19950518

Peptide hormone cardiodilation has the N-terminal amino acid sequence:
 Asn-Pro-Val-Try-Gly-Ser-Val-Ser-Asn-Ala-Asp-Leu-Met-Asp-Phe-Lys-Asn-Leu
 -Leu-Asp-His-Leu-Glu-Asa-Lys-Met-Pro-Leu-Glu-Asp-Glu-Ala-Met-Pro-Pro-Gln
 -Val-Leu-Ser-Glu-Gln-Asp-Glu-Val-Leu-Ser-Glu-Gln-Asn-Glu-Glu-Val-Gly-Ala
 -Pro-Leu-Pro-Leu-Glu-Glu-Val-Pro-Pro-Trp-Thr-Gly-Glu-Val-Asn-Pro; and
 the composition Asp/Asn 14, Thr 3, Ser 15, Glu/Gln 12, Pro 10, Gly 12, Ala
 10, Val 7, Met 4, Ile 1, Leu 15, Tyr 2, Phe 3, Lys 4, His 2, Arg 10, Trp
 2. It has an isoelectric point of 6-6.5.

USE - The new peptide hormone and its active fragments have effect on
 the ionotropy of heart muscle, as well as effects on vascular smooth
 muscle and on sweat secretion and can be used clinically and
 therapeutically particularly in the diagnosis and therapy of hypertension.
 They can also be used for the treatment of post-operative cardiovascular
 disorders, skin diseases, involving disorders of sweat secretion,
 cardiovascular shock, renal and adrenal disorders, and digestive tract
 disorders.

Dwg.0/9

Dwg.0/9

FS CPI EPI

FA AB

MC CPI: B04-C01; B12-F02; B12-G03; B12-G04; B12-J01; B12-L01

EPI: **S03-E14H9**

ABEQ US 4751284 A UPAB: 19930925

A virtually pure peptide hormone cardiodilatin has an isoelectric point
 6-6.5, an amino acid content Asp/Asn 14, Thr 3, Ser 15, Glu/Gln 12, Pro
 10, Gly 12, Ala 10, Val 7, Met 4, Ile 1, Leu 15, Tyr 2, Phe 3, Lys 4, His
 2, Arg 10 and Trp 2, and an N-terminal amino acid sequence
 Asn-Pro-Val-Tyr-Gly-Ser-Val-Ser-Asn-Ala-Asp-Leu-Met-Asp-Phe-Lys-Asn-Leu
 -Leu-Asp-His-Leu-Glu-Asp-Lys-Met-Pro-Leu-Glu-Asp-Glu-Ala-Met-Pro-Pro-Gln
 -Val-Leu-Ser-Glu-Gln-Asp-Glu-Val-Gly-Ala-Pro-Leu-Pro-Leu-Leu
 -Glu-Glu-Val-Pro-Pro-Trp-Thr-Gly-Glu-Val-Asn-Pro.

Biologically active fragments of cardiodilatin are pref. included,
 esp. fragments terminating at but not including a Met or Arg residue at at
 least 1 end. The C-terminal fractions are suitably obtd. after partial
 cyanogen bromide fission between and behind Met gps.

USE/ADVANTAGE - For diagnosis and therapy of hypertonia; the peptide
 (fragments) has a high relaxing action on the smooth blood vessel muscles.

ABEQ US 4782044 A UPAB: 19930925

Compsn. for treating a disease involving irregularities in tension or
 dilation of blood vessels comprises an ionotropic pure peptide hormone
 cardiodilatin or a fragment of it. The cardiodilatin has isoelectric point
 6-6.5, 126 amino acid residues and an amino acid compsn. of Asp/Asn 14,

Thr 3, Ser 15, Glu/Gln 12, Pro 10, Gly ,2, Ala 10, Val 7, Met 4, Ile 1, Leu 15, Tyr 2, Phe 3, Lys 4, His 2, Arg 10 and Trp 2.

USE - The compsn. may be administered orally or parenterally and pref. comprises 10-1000 ng cardiodilatin or its fragment per dosage unit. The hormone may also be used diagnostically.

ABEQ US 4895932 A UPAB: 19930925

Determin. of cardiodilatin (I) or its fragment utilises a new antibody produced in response to immunisation of a host with (I) or fragments of specified amino acid sequence. A body fluid sample is contacted with the antibody which specifically binds to (I) or its fragment and binding is determined.

The antibody may be radiolabelled or enzymatically labelled. The antibody is claimed per se.

USE - In hypertonia diagnosis and therapy.

ABEQ EP 167575 B UPAB: 19931114

The peptide hormone cardiodilatin having the N-terminal amino acid sequence Asn-Pro-Val-Tyr-Gly-Ser-Val -Ser-Asn-Ala-Asp-Leu-Met -Asp-Phe-Lys-Asn-Leu-Leu -Asp-His-Leu-Glu-Asp-Lys-Met -Pro-Leu-Glu-Asp-Glu-Ala- -Met-Pro-Pro-Gln-Val-Leu -Ser-Glu-Gln-Asp-Glu, wherein arginine moieties are present also in the subsequent amino acid sequence, and/or its biologically active fragments, obtainable in the form of active fractions, starting from atrium extract by fractionating a material extractable with aqueous solvents in accordance with conventional biochemical purification methods, using an assay wherein the active fractions are determined by the relaxant effect onto the smooth musculature.

Dwg.0/1

ABEQ DE 3346953 C UPAB: 19931115

Peptide hormone cardiodilatin has an N-terminal sequence of formula Asn-Pro-Val-Tyr-Gly-Ser-Val-Ser -Asn-Ala-Asp-Leu-Met-Asp- Leu-Met-Asp-Phe-Lys -Asn-Leu-Leu-Asp-His-Leu-Glu-Asp -Lys-Met-Pro-Leu-Glu-Asp -Glu-Ala-Met-Pro-Pro-Gln-Val -Leu-Ser-Glu-Gln-Asp-Glu... Prepn. of cardiodilatin and/or its biologically active fragments (adjacent to Met and/or Arg gps). comprises fractionation of the aq. extracts from porcine atrium tissues and the usual biochemical purifcn. methods, monitoring the active components by their relaxing activity on smooth muscle tissues.

USE - The prods. are diagnostic agents and therapeutics for hypertonia. Dosage is 10-1000ng.

Dwg.1/1

L54 ANSWER 18 OF 18 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1985-108192 [18] WPIDS

DNN N1985-081066 DNC C1985-046945

TI Low mol. wt. peptide immobilisation

- in carrier gel using formaldehyde vapour.

DC A96 B04 D16

PA (HITA) HITACHI LTD

CYC 1

PI JP 60052758 A 19850326 (198518)* 4p

ADT JP 60052758 A JP 1983-160343 19830902

PRAI JP 1983-160343 19830902

IC G01N027-26; G01N033-68

AB JP 60052758 A UPAB: 19930925

The low mol. wt. peptide is immobilised by using the vapour of formaldehyde, polyvalent aldehyde or polyvalent isocyanate. Protein and peptide, esp. low mol.

wt. peptide of about several 1000 mol. wt. can be surely immobilised in a carrier gel for electrophoresis, which makes it possible to detect low mol. wt. peptide. The method is esp. useful for e.g. the examination of urine, etc.

The immobilising reagent used in the invention is e.g. formaldehyde, glutaraldehyde, paraformaldehyde, hexamethylene diisocyanate, tolylene diisocyanate, etc. The reaction with the reagent is carried out at room temp. under normal pressure when the reagent has high vapour pressure at normal temp. or by heat under reduced pressure when it has low vapour pressure at normal temp.

Carrier gel used is e.g. polyacrylamide gel. The detection of protein (low mol. wt. peptide) in polyacrylamide gel can be sensitively and rapidly carried out.

In the previous method, protein in a carrier gel is pptd. and immobilised by a buffer liq. contg. 50% methanol and detected by using a dye. In this method, low mol. wt. peptide is not thoroughly immobilised and flows out of the carrier gel. In the new method, low mol. wt. peptide is surely immobilised and the detection of the peptide is carried out by measuring the fluorescence. Tryptophane gp. of protein immobilised in the carrier gel is oxidised by hydrogen peroxide-dioxan and treated with acid to form kynurenine exhibiting a strong fluorescence at about 120 nm, and the protein spot in the carrier gel can be detected by measuring the fluorescence.

0/0

FS CPI
 FA AB
 MC CPI: A12-V03C; B04-B04A; B04-B04B; B04-C01; B04-C03B; B11-C07B;
 B12-K04; D05-H

=> fil biosis
 FILE 'BIOSIS' ENTERED AT 09:07:02 ON 30 DEC 1999
 COPYRIGHT (C) 1999 BIOSIS(R)

FILE COVERS 1969 TO DATE.
 CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNS) PRESENT
 FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 29 December 1999 (19991229/ED)

The BIOSIS file has been reloaded. Enter HELP RLOAD and HELP REINDEXING for details.

=> d his 157-

(FILE 'WPIDS' ENTERED AT 07:28:06 ON 30 DEC 1999)

FILE 'WPIDS' ENTERED AT 08:23:35 ON 30 DEC 1999

FILE 'BIOSIS' ENTERED AT 08:24:31 ON 30 DEC 1999
 L57 3015 S ?MALDI? OR MATRIX (L) ASSIS? (L) LASER? (L) ?SPECTROM?
 L58 2859 S ?MALDI? OR MATRIX (L) ASSIS? (L) LASER? (L) DESORPT? (L) IONI
 L59 3000 S ?MALDI? OR MATRIX (L) ASSIS? (L) LASER? (L) DESORPT? (L) MASS
 L60 2863 S ?MALDI? OR MATRIX (L) ASSIS? (L) LASER? (L) IONI? (L) MASS (L
 L61 3015 S L57-L60
 L62 828 S L61 AND ?PEPTIDE?
 L63 1142 S L61 AND (10054 OR 10064)/CC
 L64 1438 S L62,L63
 L65 174 S L64 AND (?ELECTROSPRAY? OR ?ELECTRO SPRAY?)
 L66 459 S L64 AND ?CHROMATOG?
 L67 88 S L65 AND L66
 L68 19 S L67 AND MOLECULAR WEIGHT
 L69 358 S L66 AND (10502 OR 10504 OR 10050)/CC
 L70 348 S L66 AND (*10502 OR *10504 OR *10050)/CC
 L71 10 S L69 NOT L70
 E MISCELLANEOUS/IT
 L72 164572 S E3 (L) DESCRIPTOR#/IT (L) (ANALYTICAL METHOD)
 L73 80 S L70 AND L72
 L74 12 S L73 AND (MICROMETHOD# OR GEL OR LYMPHOCYTE OR ENGINEER? OR CO
 L75 268 S L70 NOT L73
 L76 223 S L75 NOT (10058 OR 10068 OR 10052 OR 10062)/CC
 L77 2 S L76 AND (ANALYSIS AND SYNTHETIC)/TI
 L78 1 S L77 NOT TOXINS/TI
 L79 64 S L76 AND (MICROBORE OR MAP? OR DEVELOPMENT OR BACTERIAL OR COU
 L80 2 S L76 AND (LASER DESORPTION MASS SPECTROMETRY)/TI

L81 1 S L80 NOT CFTR/TI
L82 43 S L79 NOT (HEVEIN OR RENAL OR SIGNAL OR MYELOID OR CLEAVAGE OR
L83 31 S L82 NOT (TYROSIN? OR ENZYM? OR CHINESE OR TRANSFERRIN OR KINA
L84 25 S L83 NOT (TANDEM OR PNA OR COLI OR THROMBIN OR BLEOMYCIN OR AC
L85 39 S L74,L78,L81,L84
E FORSSMAN/AU
L86 546 S E14,E15,E25-E32
E SCHULZ KNAP/AU
L87 55 S E4-E6
E SCHRADER M/AU
L88 106 S E3-E9,E18,E19
E OPITZ H/AU
L89 93 S E3,E4,E9
L90 740 S L86-L89
L91 3 S L90 AND L85
L92 36 S L85 NOT L91

FILE 'BIOSIS' ENTERED AT 09:07:02 ON 30 DEC 1999

=> d all tot

L92 ANSWER 1 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
AN 2000:13994 BIOSIS
DN PREV200000013994
TI A novel interface for on-line coupling of liquid capillary chromatography with matrix-assisted laser desorption/ionization detection.
AU Zhan, Qiao; Gusev, Arkady; Hercules, David M. (1)
CS (1) Department of Chemistry, Vanderbilt University, Station B, Nashville, TN, 37235 USA
SO Rapid Communications in Mass Spectrometry, (1999) Vol. 13, No. 22, pp. 2278-2283.
ISSN: 0951-4198.
DT Article
LA English
SL English
AB A novel interface has been developed which should allow the direct on-line coupling of liquid capillary chromatography with matrix-assisted laser desorption/ionization (MALDI) mass spectrometry detection. The interface employs continuous analyte/matrix co-crystallization onto a porous frit installed at a capillary end which is used as the target for MALDI. After separation, the analyte effluent is premixed with the MALDI matrix solution and introduced into the interface. The analyte/matrix mixture is co-crystallized onto the frit surface in the vacuum environment of the mass spectrometer. Continuous matrix/analyte crystallization and interface regeneration is accomplished by a combination of solvent flushing and laser ablation. The memory effect is negligible over a dynamic range of ca. 200. Several applications, including analysis of small peptides and combination with gel permeation chromatography (GPC), have indicated that the on-line MALDI interface does not sacrifice chromatographic resolution, and have demonstrated the possibility of a reliable LC-MALDI system.
CC Biochemical Studies - General *10060
Biochemical Methods - General *10050
Biophysics - General Biophysical Studies *10502
Endocrine System - General *17002
IT Major Concepts
Biochemistry and Molecular Biophysics; Methods and Techniques
IT Chemicals & Biochemicals
angiotensin II: Sigma, analysis; bradykinin: Sigma, analysis
IT Methods & Equipment
GPC instrument: equipment; HPLC instrument: equipment; gel permeation chromatography [GPC]: chromatographic techniques,

separation method; high performance liquid **chromatography**:
 liquid **chromatography**, on-line coupling interface, separation
 method; **matrix-assisted laser/**
desorption ionization-mass
spectrometry [MALDI-MS]: analytical method,
 spectroscopic techniques: CB; modified LAMMA 1000 reflectron
 time-of-flight **laser mass spectrometer**:
 equipment

RN 11128-99-7 (ANGIOTENSIN II)
 58-82-2 (BRADYKININ)

L92 ANSWER 2 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1999:507927 BIOSIS

DN PREV199900507927

TI **Identification** of proteins from two-dimensional gel electrophoresis of human erythroleukemia cells using capillary high performance liquid **chromatography/electrospray-ion trap**-reflectron time-of-flight mass spectrometry with two-dimensional topographic **map** analysis of in-gel tryptic digest products.

AU Chen, Yajuan; Jin, Xiaoying; Misek, David; Hinderer, Robert; Hanash, Sam M.; Lubman, David M. (1)

CS (1) Department of Chemistry, The University of Michigan, Ann Arbor, MI, 48109-1055 USA

SO Rapid Communications in Mass Spectrometry, (1999) Vol. 13, No. 19, pp. 1907-1916.

ISSN: 0951-4198.

DT Article

LA English

SL English

AB Protein spots from two-dimensional (2-D) gel electrophoresis of a human erythroleukemia cell line have been identified by analysis of the in-gel tryptic digests using capillary high performance liquid **chromatography** (HPLC) separation with on-line detection using **electrospray ionization mass spectrometry** (ESI-MS). This is performed using an electrospray/ion trap storage/reflectron time-of-flight **mass spectrometer** system (ESI-IT-reTOFMS). A 2-D topographic mapping display developed to process the on-line data acquired with this TOF system has been used to obtain **mass** identification of each **peptide**, even though the capillary HPLC only provides limited separation capability of the tryptic **peptide** mixtures studies herein. Using this method, a substantial fraction of the protein sequence can be covered and identified using the tryptic map. It is demonstrated that by entering the cell species, the approximate MW and PI range as determined by 2-D gel electrophoresis, and the tryptic **peptide** map into the database a unique match for identification of the protein generally results. It is also demonstrated that a much improved coverage of the protein sequence is obtained by this method relative to **matrix-assisted laser desorption/ionization mass spectrometry** (MALDI-MS).

CC Cytology and Cytochemistry - Human *02508

Biochemical Methods - General *10050

Biochemical Studies - General *10060

Biophysics - General Biophysical Studies *10502

IT Major Concepts

Biochemistry and Molecular Biophysics; Cell Biology; Methods and Techniques

IT Parts, Structures, & Systems of Organisms
 human erythroleukemia cells

IT Chemicals & Biochemicals

proteins: analysis, identification, in-gel tryptic digest products

IT Methods & Equipment

capillary high performance liquid **chromatography**:
chromatographic techniques, separation method; electrospray ion-trap reflectron time-of-flight mass spectrometry [ESI-IT-reTOFMS]: analytical method, spectroscopic techniques: CB; ion-trap reflectron

time-of-flight mass spectrometer: Jordan Co., equipment; two-dimensional gel electrophoresis: polyacrylamide gel electrophoresis, separation method; two-dimensional topographic map analysis: Analysis/Characterization Techniques: CB, analytical method; HPLC instrument: equipment

L92 ANSWER 3 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1999:438057 BIOSIS
 DN PREV199900438057
 TI **Rapid screening of protein profiles of human breast cancer cell lines using non-porous reversed-phase high performance liquid chromatography separation with matrix-assisted laser desorption/ionization time-of-flight mass spectral analysis.**
 AU Chong, Bathsheba E.; Lubman, David M. (1); Miller, Fred R.; Rosenspire, Allen J.
 CS (1) Department of Chemistry, University of Michigan, Ann Arbor, MI, 48109-1055 USA
 SO Rapid Communications in Mass Spectrometry, (1999) Vol. 13, No. 18, pp. 1808-1812.
 ISSN: 0951-4198.
 DT Article
 LA English
 SL English
 AB Non-porous reversed-phase (NP-RP) HPLC has been used to rapidly generate protein profiles of whole cell lysates of human breast cancer cell lines. The non-porous packing material used was silica coated with C18, which provided rapid separation with high collection efficiency of proteins from cell lysates. This method was used to study the differences in protein profiles among normal cells and fully malignant cells that share a common genetic background. The highly expressed proteins in each cell type were separated and collected in the liquid state where they were analyzed by **matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOFMS)** to obtain the molecular weight of the proteins. The protein fractions were then subjected to tryptic digestion and analyzed by pulsed delay extraction (PDE)-**MALDI-TOFMS** to obtain the **peptide maps**. The expressed proteins were identified based upon the molecular weight and **peptide map** using database-searching procedures. It is shown that key cancer-related proteins can be detected and identified which may be potentially used as biomarkers for cancer detection.
 CC Neoplasms and Neoplastic Agents - Biochemistry *24006
 Biochemical Methods - General *10050
 Biophysics - General Biophysical Studies *10502
 BC Reproductive System - General; Methods *16501
 Hominidae 86215
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques; Tumor Biology
 IT Chemicals & Biochemicals
 protein: analysis, profiles
 IT Methods & Equipment
 high performance liquid **chromatography**: liquid **chromatography**, purification method; **matrix-assisted laser desorption/ionization mass spectrometry**: analytical method, **mass spectrometry**: cb; Beckman System Gold
 high performance liquid **chromatography** system: Beckman, laboratory equipment; C18 coated silica: packing material
 ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
 ORGN Organism Name
 MCF-10A cell line (Hominidae): human breast cancer cells; MCF-7 cell line (Hominidae): human breast cancer cells
 ORGN Organism Superterms
 Animals; Chordates; Humans; Mammals; Primates; Vertebrates

RN 7631-86-9 (SILICA)
 7440-57-5 (GOLD)

L92 ANSWER 4 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1999:304833 BIOSIS
 DN PREV199900304833
 TI Protein identification in SDS PAGE gel bands using mass spectrometry: The need for analysis by complementary methods (MALDI vs. nanoflow ESIMS).
 AU Medzihradszky, K. F. (1); Leffler, H. (1); Burlingame, A. L. (1)
 CS (1) Mass Spectrometry Facility, Department of Pharmaceutical Chemistry, University of California San Francisco, San Francisco, CA, 94143-0446 USA
 SO FASEB Journal, (April 23, 1999) Vol. 13, No. 7, pp. A1478.
 Meeting Info.: Annual Meeting of the American Societies for Experimental Biology on Biochemistry and Molecular Biology 99 San Francisco, California, USA May 16-20, 1999 American Societies for Experimental Biology
 . ISSN: 0892-6638.

DT Conference
 LA English
 CC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504
 Digestive System - General; Methods *14001
 General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annals *00520
 BC Leporidae 86040
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
 IT Parts, Structures, & Systems of Organisms
 intestine: digestive system
 IT Chemicals & Biochemicals
 protein: identification, purification
 IT Methods & Equipment
 mass spectrometry: spectroscopic techniques: CB;
 reversed-phase HPLC [reversed-phase high performance liquid chromatography]: analytical method; Matrix-Assisted Laser Desorption Ionization analysis: analytical method; Nanoflow electrospray analysis: analytical method; QSTAR instrument [quadrupole-time-of-flight instrument]; SDS-PAGE gel bands [SDS-polyacrylamide gel electrophoresis]: purification method
 IT Miscellaneous Descriptors
 Meeting Abstract
 ORGN Super Taxa
 Leporidae: Lagomorpha, Mammalia, Vertebrata, Chordata, Animalia
 ORGN Organism Name
 rabbit (Leporidae)
 ORGN Organism Superterms
 Animals; Chordates; Lagomorphs; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Vertebrates

L92 ANSWER 5 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1999:256189 BIOSIS
 DN PREV199900256189
 TI Protein sequencing by ISD and PSD MALDI-TOF MS.
 AU Suckau, D. (1); Cornett, D. S. (1)
 CS (1) Bruker Daltonik GmbH, Fahrenheitstrasse 4, D-28359, Bremen Germany
 SO Analusis, (Dec., 1998) Vol. 26, No. 10, pp. M18-M21.
 ISSN: 0365-4877.
 DT Article
 LA English
 SL English
 AB Peptide and protein sequencing techniques are discussed which are available on a MALDI-TOF mass spectrometer equipped with an

ion reflector. They allow the fast assignment of at least partial sequences that are sufficient to identify a protein uniquely by library searches and do not require additional enzymatic or chromatographic steps.

CC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504

IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques

IT Chemicals & Biochemicals
 oxytocin: sequencing; peptide: sequencing; protein:
 sequencing

IT Methods & Equipment
 ion-source decay spectra [ISD spectra]: analytical method, optical analysis; matrix-assisted laser desorption/ionization time-of-flight mass spectrometry [MALDI-TOF MS]: mass spectrometry: CB, sequencing method; oxytocin sequencing: sequencing method, sequencing techniques; post-source decay spectra [PSD spectra]: analytical method, optical analysis; REFLEX II MALDI-TOF mass spectrometer: equipment

RN 50-56-6 (OXYTOCIN)

L92 ANSWER 6 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1999:247184 BIOSIS
 DN PREV199900247184

TI An investigation of residue-specific contributions to peptide desorption in MALDI-TOF mass spectrometry.

AU Valero, Mari-Luz; Giralt, Ernest; Andreu, David (1)
 CS (1) Department of Organic Chemistry, University of Barcelona, E-08028, Barcelona Spain

SO Letters in Peptide Science, (March, 1999) Vol. 6, No. 2-3, pp. 109-115.
 ISSN: 0929-5666.

DT Article
 LA English
 SL English

AB The MALDI-TOF mass spectra of a set of 240 analogs of the pentadecapeptide YTASARGDLAHLTTT, displaying single point replacements with all amino acids except Met, Cys and Trp, have been used to study the contribution of individual residues to peptide desorption. Replacements with non-polar aliphatic (except Ala) or aromatic residues at most positions tend to reinforce ion signals relative to the cognate sequence. Among polar residues, Arg shows also a clear tendency to enhance signal intensity at most positions. The responses recorded for replacements with a given amino acid can be averaged and normalized to give a mean response index, R_m, which qualitatively expresses the relative contribution of that residue to the desorption of a generic peptide. HPLC analysis of the replacement set does not support a significant role of residue hydrophobicity in peptide desorption. The unique role of Arg in promoting peptide desorption may be related to a better stabilization of peptide-matrix adducts through guanidinium-carboxylate interaction.

CC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Comparative Biochemistry, General *10010
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Studies *10502
 Biophysics - Molecular Properties and Macromolecules *10506

IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques

IT Chemicals & Biochemicals
 amino acids; pentadecapeptides: analysis; peptide-matrix adducts: analysis; peptides: analysis

IT Methods & Equipment
 matrix-assisted laser desorption ionization time-of-flight detection mass spectrometry: analytical method, spectroscopic techniques: CB;

Finnigan MAT **Lasermat 2000 spectrometer**: Finnigan, equipment; HPLC [high performance liquid **chromatography**]: analytical method, liquid **chromatography**

IT Miscellaneous Descriptors

peptide desorption: analysis, residue-specific

L92 ANSWER 7 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1999:199570 BIOSIS

DN PREV199900199570

TI A strategy for **rapid** and efficient sequencing of Lys-C **peptides** by **Matrix-assisted laser desorption/ionisation** time-of-flight **mass spectrometry** post-source decay.

AU Pfeifer, Thomas; Ruecknagel, Peter; Kuellertz, Gerhard; Schierhorn, Angelika (1)

CS (1) Department of Biochemistry, University Halle-Wittenberg, Kurt-Mothes-Str. 3, D-06120, Halle/Saale Germany

SO Rapid Communications in Mass Spectrometry, (1999) Vol. 13, No. 5, pp. 362-369.

ISSN: 0951-4198.

DT Article

LA English

AB A modification procedure for Lys-C **peptides** is described which simplifies the correct assignment of the amino acid sequence. Release of the C-terminal lysine from Lys-C **peptides** by carboxypeptidase B and subsequent N-terminal acetylation of the resulting **peptides** leads to predictable shifts of the C- and N-terminal fragment ions in Matrix-assisted laser desorption/ionisation time-of-flight post-source decay mass spectra and facilitates the correct assignment of mostly complete amino acid sequences for **oligopeptides**. The derived sequences of **peptides** from unknown proteins were used to search in databases for homologous protein sequences. Our method was applied to an unknown protein isolated from eggs of *Drosophila melanogaster*, resulting in the identification of a peptidyl prolyl cis-trans-isomerase.

CC Biochemical Studies - General *10060

Genetics and Cytogenetics - Animal *03506

Enzymes - General and Comparative Studies; Coenzymes *10802

Invertebrata, Comparative and Experimental Morphology, Physiology and

Pathology - Insecta - General *64072

Biochemical Methods - General *10050

BC Diptera 75314

IT Major Concepts

Biochemistry and Molecular Biophysics; Methods and Techniques

IT Chemicals & Biochemicals

carboxypeptidase B; lysine-C **peptides**; **oligopeptides**

; peptidyl prolyl cis-trans-isomerase

IT Methods & Equipment

affinity column: laboratory equipment; amino-terminal sequencing: Recombinant DNA Technology, sequencing techniques, gene sequencing method; **matrix-assisted laser**

desorption/ionization time-of-flight **mass**

spectrometry post-source decay: analytical method, **mass**

spectrometry: CB; reversed-phase high performance liquid

chromatography: liquid **chromatography**, purification

method; sequencing: Recombinant DNA Technology, gene sequencing method, sequencing techniques; Bruker Reflex TOF **mass**

spectrometer: Bruker-Franzen, laboratory equipment

ORGN Super Taxa

Diptera: Insecta, Arthropoda, Invertebrata, Animalia

ORGN Organism Name

Drosophila melanogaster (Diptera)

ORGN Organism Superterms

Animals; Arthropods; Insects; Invertebrates

RN 9025-24-5 (CARBOXYPEPTIDASE B)

L92 ANSWER 8 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1999:166959 BIOSIS
 DN PREV199900166959
 TI **MALDI/peptide mass fingerprinting** analysis
 of complex protein mixtures: Implications for proteomics.
 AU Parker, Kenneth C. (1)
 CS (1) Perseptive Biosystems, 500 Old Connecticut Path, Framingham, MA 01701
 USA
 SO Abstracts of Papers American Chemical Society, (1999) Vol. 217, No. 1-2,
 pp. ANYL 180.
 Meeting Info.: 217th National Meeting of the American Chemical Society
 Anaheim, California, USA March 21-25, 1999 American Chemical Society
 . ISSN: 0065-7727.
 DT Conference
 LA English
 CC Genetics of Bacteria and Viruses *31500
 Genetics and Cytogenetics - General *03502
 Biochemical Methods - General *10050
 Biochemical Studies - General *10060
 BC Enterobacteriaceae 06702
 IT Major Concepts
 Methods and Techniques; Molecular Genetics (Biochemistry and Molecular
 Biophysics)
 IT Chemicals & Biochemicals
 protein: analysis, complex mixtures; DNA
 IT Methods & Equipment
 chromatography: purification method; **peptide mass**
 fingerprinting: analytical method; **MALDI** [matrix-assisted
 laser/desorption ionization]: analytical method; SDS gel
 electrophoresis: analytical method, separation method; 2D gel
 electrophoresis: analytical method, separation method
 IT Miscellaneous Descriptors
 proteomics; Meeting Abstract
 ORGN Super Taxa
 Enterobacteriaceae: Facultatively Anaerobic Gram-Negative Rods,
 Eubacteria, Bacteria, Microorganisms
 ORGN Organism Name
 E. coli [Escherichia coli] (Enterobacteriaceae)
 ORGN Organism Superterms
 Bacteria; Eubacteria; Microorganisms

L92 ANSWER 9 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1999:149127 BIOSIS
 DN PREV199900149127
 TI **Matrix-assisted laser desorption/**
ionisation time-of-flight/thin layer chromatography/
mass spectrometry: A rapid method for impurity
 testing.
 AU Mowthorpe, Siew; Clench, Malcolm R. (1); Cricelius, Anna; Richards, Don
 S.; Parr, Vic; Tetler, Lee W.
 CS (1) Div. Chem., Sch. Sci. Math., Sheffield Hallam Univ., Pond St.,
 Sheffield S1 1WB UK
 SO Rapid Communications in Mass Spectrometry, (1999) Vol. 13, No. 4, pp.
 264-270.
 ISSN: 0951-4198.
 DT Article
 LA English
 AB Thin layer chromatography/matrix-assisted
 laser desorption/ionization mass
 spectrometry (TLC/MALDI-IMS) has been previously used to obtain
 mass spectra from a variety of compounds, principally
 peptides. For pharmaceutical compounds, which are often of
 relatively low molecular weight, it is important that any matrix
 materials employed do not interfere with the mass spectra
 obtained. The key step to successful TLC/MALDI-MS is hence the
 preparation of the TLC plate prior to mass spectrometry
 . Crucial to this is the deposition of matrix material into the

plate to promote co-crystallization with the analyte. In this work we have examined the literature methods for plate preparation and developed two new approaches. The first involves brushing the TLC plate with a supersaturated solution of **matrix** and the second involves electrospraying the TLC plate with a **matrix** solution. Data are presented from the direct analysis of tetracycline and its impurities. Using the electrospray method the limit of detection for tetracycline is 1 ng from a TLC plate. A commercial **MALDI-TOF mass spectrometer** has been modified to allow the acquisition of **chromatographic** data from TLC plates. **Chromatograms** from replicate spots of 100 and 1 mug of tetracycline are shown.

CC Pharmacology - General *22002

Biochemical Methods - General *10050

Biophysics - General Biophysical Studies *10502

Chemotherapy - General; Methods; Metabolism *38502

IT Major Concepts

Methods and Techniques; Pharmacology

IT Chemicals & Biochemicals

anhydrotetracycline: Pfizer Central Research, pharmaceutical impurity, tetracycline manufacturing impurity, analysis; compound iv: Pfizer Central Research, pharmaceutical impurity, tetracycline manufacturing impurity, analysis; epitetracycline: Pfizer Central Research, pharmaceutical impurity, tetracycline manufacturing impurity, analysis; tetracycline: Sigma-Aldrich, analysis, pharmaceutical

IT Methods & Equipment

matrix-assisted laser desorption

/ionisation time-of-flight/thin layer **chromatography**

/mass spectrometry: analytical method,

chromatographic techniques: cb, **mass**

spectrometry: cb, purification method; **LaserTOF** 1500

mass spectrometer: Scientific Analytical Instruments, modified, laboratory equipment

IT Miscellaneous Descriptors

rapid pharmaceutical impurities testing

RN 60-54-8 (TETRACYCLINE)

79-85-6 (EPITETRACYCLINE)

1665-56-1 (ANHYDROTETRACYCLINE)

L92 ANSWER 10 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1999:90964 BIOSIS

DN PREV199900090964

TI Liquid **chromatography**/microspray mass spectrometry for **bacterial** investigations.

AU Krishnamurthy, Thaiya (1); Davis, Michael T.; Stahl, Douglas C.; Lee, Terry D.

CS (1) R and T Directorate, US Army Edgewood RD and E Center, Aberdeen Proving Ground, MD 21010-5423 USA

SO Rapid Communications in Mass Spectrometry, (1999) Vol. 13, No. 1, pp. 39-49.

ISSN: 0951-4198.

DT Article

LA English

AB Cellular proteins (biomarkers) specific to any individual microorganism, determined by the direct **mass** spectral analysis of the corresponding intact cellular suspension, can be applied for the rapid and specific identification of the organisms present in unknown samples. The components of the bacterial suspensions, after a rapid separation over a C18 reversed-phase microcapillary column, were directly subjected to on-line electrospray ionization followed by analysis using an ion trap tandem **mass spectrometer**. This approach is equally effective for gram-positive as well as gram-negative bacteria but has a distinct advantage over our earlier reported method involving **matrix-assisted laser desorption**/ionization time-of-flight **mass spectrometry** (**MALDI-TOFMS**). During electrospray ionization **mass spectrometry** (ESI-MS), liquid samples can be

directly analyzed and there is the potential for developing tandem mass spectral methods for more specific identification of the individual organisms present in crude bacterial mixtures. The total analysis time leading to unambiguous bacterial identification in samples was less than 10 minutes and the results were quite reproducible. Miniaturization of the instrumentation along with total automation of this simple process could have immense impact on field operations. Routine, rapid, cost-effective field monitoring of environmental samples, agricultural products, samples from food processing, industrial sites and health institutions for suspected bacterial contamination could be a reality in the near future. Potential utility in biological, medical, bioprocessing, pharmaceutical, and other industrial research is also enormous.

CC **Biophysics - General Biophysical Techniques *10504**
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Physiology and Biochemistry of Bacteria *31000
 Medical and Clinical Microbiology - Bacteriology *36002
 BC Gram-Negative Aerobic Rods and Cocci 06500
 Enterobacteriaceae 06702
 Endospore-forming Gram-Positives 07810
 IT Major Concepts
 Infection; Methods and Techniques
 IT Chemicals & Biochemicals
 cellular proteins: analysis, bacterial biomarkers, separation
 IT Methods & Equipment
 electrospray ionization mass spectrometry
 : analytical method, **mass spectrometry**: CB;
 matrix-assisted laser desorption/ionization time-of-flight **mass spectrometry**
 : analytical method, **mass spectrometry**: CB; C-18
 reversed-phase microcapillary column: equipment; HPLC [high performance liquid **chromatography**]: analytical method, liquid **chromatography**

ORGN Super Taxa
 Endospore-forming Gram-Positives: Eubacteria, Bacteria, Microorganisms;
 Enterobacteriaceae: Facultatively Anaerobic Gram-Negative Rods,
 Eubacteria, Bacteria, Microorganisms; Gram-Negative Aerobic Rods and
 Cocci: Eubacteria, Bacteria, Microorganisms

ORGN Organism Name
 Bacillus cereus (Endospore-forming Gram-Positives); **Bacillus subtilis**
 (Endospore-forming Gram-Positives); **Bacillus thuringiensis**
 (Endospore-forming Gram-Positives); **Brucella melitensis** (Gram-Negative
 Aerobic Rods and Cocci); **Francisella tularensis** (Gram-Negative Aerobic
 Rods and Cocci); **Yersinia pestis** (Enterobacteriaceae)

ORGN Organism Superterms
 Bacteria; Eubacteria; Microorganisms

L92 ANSWER 11 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1999:63823 BIOSIS
 DN PREV199900063823
 TI A **rapid** and sensitive procedure for the micro-purification and
 subsdequent characterization of **peptides** and protein samples by
 N-terminal sequencing and **matrix assisted**
 laser desorption ionization time of flight
 mass spectrometry.
 AU Grimm, R.; Grasser, K. D.; Kubach, J.; Hancock, W. S. (1)
 CS (1) Hewlett-Packard, Chem. Analysis Group Europe, 76337 Waldbronn Germany
 SO Journal of Pharmaceutical and Biomedical Analysis, (Dec., 1998) Vol. 18,
 No. 4-5, pp. 545-554.
 ISSN: 0731-7085.
 DT Article
 LA English
 AB The characterization of the proteome, a key activity in the post-genome
 era, is made extremely challenging by the microheterogeneity introduced by
 post translational modifications such as glycosylation in the diverse set
 of proteins expressed in a cellular system. High resolution separation

systems, such as 2D-gel electrophoresis and more recently liquid chromatography (LC) have been used to fractionate these complex mixtures, however, subsequent mass analysis is hindered by the low level of the purified components. Off-line coupling of matrix assisted laser desorption ionization

time of flight mass spectrometry (MALDI)

-TOF/MS) is an attractive technique for the analysis of such samples, but suffers from sensitivity to the degree of salt contamination that is unavoidable in the isolation of low level protein samples from biological extracts. In this publication we will report on a novel application of a commercially available system for the micro-purification of peptides and proteins. In this procedure micro-columns (normally used for sequencing of electroblotted samples) were used to rapidly purify protein digests or crude extracts of proteins in sufficient amounts for further analyses by protein sequencing and MALDI-TOF/MS. To demonstrate the applicability of the these techniques we isolated and performed structural analysis of the following samples: a high-mannose glycopeptide isolated from a digest of the glycoprotein rt-PA, a poly-His tagged recombinant DNA-binding protein isolated by Ni²⁺-chelating agarose and a polyclonal antibody sample.

CC Pharmacology - General *22002

Biochemical Studies - Proteins, Peptides and Amino Acids *10064

Biophysics - General Biophysical Techniques *10504

IT Major Concepts

Methods and Techniques; Pharmacology

IT Chemicals & Biochemicals

high-mannose glycoprotein: characterization, purification;

peptides: characterization, purification; poly-histidine tagged recombinant DNA-binding protein: characterization, purification; protein samples: characterization, purification

IT Methods & Equipment

column purification: Isolation/Purification Techniques: CB, purification method; matrix assisted laser desorption ionization time of flight mass spectrometry: analytical method, mass spectrometry: CB; reversed-phase HPLC [reversed phase high performance liquid chromatography]: analytical method, high performance liquid chromatography: HP G2025A instrument: equipment; HP 1090 Series II HPLC system: equipment; N-terminal protein sequencing: protein sequencing, sequencing method

RN 26062-48-6Q (POLY-HISTIDINE)

26854-81-9Q (POLY-HISTIDINE)

L92 ANSWER 12 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1999:63376 BIOSIS

DN PREV199900063376

TI Rapid identification and screening of proteins from whole cell lysates of human erythroleukemia cells in the liquid phase, using non-porous reversed phase high-performance liquid chromatography separations of proteins followed by multi-assisted laser desorption/ionization mass spectrometry analysis and sequence database searching.

AU Chen, Yajuan; Wall, Dan; Lubman, David M. (1)

CS (1) Dep. Chemistry, University Michigan, 930 N. University Ave., Ann Arbor, MI 48109-1055 USA

SO Rapid Communications in Mass Spectrometry, (1998) Vol. 12, No. 24, pp. 1994-2003.

ISSN: 0951-4198.

DT Article

LA English

AB Non-porous reversed phase (NPRP) high-performance liquid chromatography (HPLC) has been used as a rapid method to separate proteins from whole cell lysates of human erythroleukemia (HEL) cells. Using phosphate-buffered saline (PBS) as a lysis buffer to extract proteins from HEL cells, more than 100 proteins of molecular weight up to 30 kDa were separated by the NPRP HPLC method, using a programmed

acetonitrile:H₂O gradient. The separated proteins were collected as liquid fractions as they eluted, and were further separated on the NPPR column with a different gradient to separate coeluting peaks. The isolated protein fractions were analyzed by **matrix-assisted laser desorption/ionization mass spectrometry (MALDI-MS)** to determine the molecular weight of the protein. The proteins were cleaved by chemical or enzymatic digestion to produce **peptide maps**, which were analyzed by pulsed delayed extraction MALDI-MS. The **peptide maps** were matched against a database search to determine the protein identity. In some cases, several enzymes were used in order to find exactly one match against the database. This methodology is demonstrated for several proteins isolated from HEL cells and identified via database matching.

- CC Neoplasms and Neoplastic Agents - General *24002
 Cytology and Cytochemistry - Human *02508
 Biochemical Methods - General *10050
 Biophysics - General Biophysical Studies *10502
 BC Blood, Blood-Forming Organs and Body Fluids - General; Methods *15001
 Hominidae 86215
 IT Major Concepts
 Methods and Techniques; Tumor Biology
 IT Parts, Structures, & Systems of Organisms
 erythroleukemia cells: blood and lymphatics, immune system, whole cell lysates
 IT Diseases
 erythroleukemia: blood and lymphatic disease, neoplastic disease
 IT Chemicals & Biochemicals
 phosphate-buffered saline: lysis buffer; protein: analysis, rapid identification, screening
 IT Alternate Indexing
 Leukemia, Erythroblastic, Acute (MeSH)
 IT Methods & Equipment
 multi-assisted laser desorption/ionization mass spectrometry:
 analytical method, mass spectrometry: cb; non-porous reversed phase
 high performance liquid **chromatography**: high performance
 liquid **chromatography**, purification method; sequence database
 searching: Analysis/Characterization Techniques: cb, analytical method;
 Beckman System Gold high performance liquid **chromatograph**:
 Beckman, laboratory equipment
 IT Miscellaneous Descriptors
 proteomics
 ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
 ORGN Organism Name
 human (Hominidae)
 ORGN Organism Superterms
 Animals; Chordates; Humans; Mammals; Primates; Vertebrates
 RN 14265-44-2 (PHOSPHATE)
 7440-57-5 (GOLD)
 L92 ANSWER 13 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1999:23890 BIOSIS
 DN PREV199900023890
 TI **Identification of proteins by matrix-assisted laser desorption/ionization mass spectrometry using peptide and fragment ion masses.**
 AU Courchesne, Paul L.; Patterson, Scott D.
 CS Protein Structure, Amgen Inc., Thousand Oaks, CA USA
 SO Link, A. J.. Methods in Molecular Biology, (1999) Vol. 112, pp. 487-511.
 Methods in Molecular Biology; 2-D proteome analysis protocols.
 Publisher: Humana Press Inc. Suite 808, 999 Riverview Drive, Totowa, New Jersey 07512, USA.
 ISSN: 0097-0816. ISBN: 0-89603-524-7.
 DT Book
 LA English

CC Biochemical Methods - General *10050
 Biochemical Studies - General *10060
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
 IT Chemicals & Biochemicals
 protein: identification
 IT Methods & Equipment
 enzymatic digestion in-gel: characterization method, chemical
 modification, protocol; enzymatic digestion on Immobilon-CD:
 characterization method, protocol, chemical modification; enzymatic
 digestion on Immobilon-P: characterization method, protocol, chemical
 modification; **matrix-assisted laser/**
 desorption ionization/ionization
 mass spectrometry: Analysis/Characterization
 Techniques: CB, analytical method; microcolumn **chromatography**
 : **chromatographic** techniques, protocol, purification method;
 two-dimensional gel electrophoresis: polyacrylamide gel
 electrophoresis, separation method
 IT Miscellaneous Descriptors
 Book Chapter
 RN 9003-05-8 (POLYACRYLAMIDE)

 L92 ANSWER 14 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1998:473370 BIOSIS
 DN PREV199800473370
 TI **Coupling** capillary high-performance liquid
 chromatography to **matrix-assisted**
 laser desorption/ionization mass
 spectrometry and N-terminal sequencing of **peptides** via
 automated microblotting onto membrane substrates.
 AU Stevenson, Tracy I.; Loo, Joseph A.; Greis, Kenneth D. (1)
 CS (1) Procter and Gamble Pharmaceuticals, P.O. Box 8006, Mason, OH 45040 USA
 SO Analytical Biochemistry, (Sept. 10, 1998) Vol. 262, No. 2, pp. 99-109.
 ISSN: 0003-2697.
 DT Article
 LA English
 AB To minimize low-quantity sample handling for protein sequencing and
 matrix-assisted laser desorption/
 ionization (MALDI) mass spectrometry
 , a system consisting of an HPLC interfaced to an automated blotting
 device was used for off-line sample collection. Typically, protein digests
 are separated by reverse-phase HPLC and the resulting **peptide**
 fractions are pooled, concentrated, and then subjected to N-terminal
 sequence analysis. Obtaining unambiguous sequence from **peptides**
 derived from protein digestion at subpicomole levels requires careful
 sample handling to prevent loss of sample. In cases where multiple
 sequences are present, a secondary method such as **mass**
 spectrometry is needed to confirm the identity of the
 peptides. To minimize sample handling, commercial microblotting
 instruments have become available to deposit **peptides** directly
 onto polyvinylidene difluoride (PVDF) membrane for automated N-terminal
 sequence analysis. In order to adapt this technology to **mass**
 spectrometry, we investigated the use of **MALDI-MS**
 compatible membranes such as Teflon and polyethylene (PE) as the blotting
 media for fraction collection. Using a panel of standard **peptides**
 as well as protein digests, we demonstrate that **peptides**
 separated by capillary HPLC can be collected directly onto Teflon or PE
 and detected into the femtomole range. Furthermore, detailed sequence
 analysis could be obtained by postsource decay fragmentation spectra of
 individual **peptides** blotted onto either PE or Teflon. Due to
 the high sensitivity of the **MALDI-MS** from these membranes, it
 was discovered that the small amount of **peptide** that passed
 through the PVDF membrane during a collection of **peptides** for
 N-terminal sequencing was sufficient to be collected and **mass**
 analyzed from a second underlying **MALDI-MS** compatible membrane.
 Therefore, from a single HPLC separation, samples could be collected onto

both PVDF for traditional N-terminal sequencing and PE or Teflon for MALDI-MS. We demonstrate the general utility of this method for sequencing **peptides** from a tryptic digestion at subpicomole levels and for identifying unknown proteins separated by 2-dimensional gel electrophoresis. The ability to generate both N-terminal sequence and confirmatory **mass** information from multiple **peptides** in a single separation greatly improves the reliability and the accuracy of protein characterization at subpicomole levels.

- CC Biochemical Studies - General *10060
Biochemical Methods - General *10050
- IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
- IT Chemicals & Biochemicals
peptides
- IT Methods & Equipment
 automated microblotting: Recombinant DNA Technology, gene sequencing method, sequencing techniques; capillary high performance liquid chromatography: liquid **chromatography**, separation method; **matrix-assisted laser desorption/ionization mass spectrometry**: analytical method, **mass spectrometry**: CB; polyethylene membranes: laboratory equipment; polyvinylidene difluoride membrane: laboratory equipment; sequence analysis: Analysis/Characterization Techniques: CB, analytical method; Applied Biosystems Procise Model 492 protein sequencer: Applied Biosystems, laboratory equipment; ABI Model 785A programmable absorbance detector: ABI, laboratory equipment; Brownlee C-18 column: laboratory equipment; N-terminal sequencing: Recombinant DNA Technology, gene sequencing method, sequencing techniques; Perkin-Elmer/ABI Model 140D microgradient delivery system: ABI, laboratory equipment, Perkin-Elmer; PerSeptive Biosystems, Inc. Voyager Elite-DE time-of-flight **mass spectrometer**: PerSeptive Biosystems, Inc., laboratory equipment; SDS-polyacrylamide gel electrophoresis: polyacrylamide gel electrophoresis, separation method; Teflon membranes: Millipore Corp., laboratory equipment; 2-dimensional gel electrophoresis: electrophoretic techniques, separation method
- IT Miscellaneous Descriptors
 membrane substrates; protein digestion; sample handling
- RN 24937-79-9 (POLYVINYLIDENE DIFLUORIDE)
 9002-84-0 (TEFLON)
 9002-88-4 (POLYETHYLENE)
- L92 ANSWER 15 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1998:407472 BIOSIS
 DN PREV199800407472
 TI **Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry**
 analysis of proteins in human cerebrospinal fluid.
 AU Westman, A. (1); Nilsson, C. L.; Ekman, R.
 CS (1) Inst. Clinical Neurosci., Dep. Psychiatry Neurochemistry, Goteborg Univ., Sahlgrenska Univ. Hospital/Molndal, S-431 80 Molndal Sweden
 SO Rapid Communications in Mass Spectrometry, (1998) Vol. 12, No. 16, pp. 1092-1098.
 ISSN: 0951-4198.
 DT Article
 LA English
 AB **Matrix-assisted laser desorption/ionization time-of-flight mass spectra** of proteins in cerebrospinal fluid analyzed without prior purification are presented. Less than 100 fmol amounts of proteins in the 10000 to 20000 u **mass** range and linked to human disease (multiple sclerosis, Alzheimer's disease, and stroke) were detected in a complex mixture of proteins and **peptides**, in the presence of high concentrations of salts, lipids and free amino acids. The **mass** resolution was sufficient to distinguish between the non-hydroxylated and hydroxylated

forms of a 13 400 u protein. Simple fractionation of the cerebrospinal fluid using microbore-reversed phase high performance liquid **chromatography** improved signal-to-noise ratios in the **mass** spectra. High-accuracy **peptide mass** mapping and database searching were utilized to confirm the identity of several proteins. The presented results show that **matrix-assisted laser desorption/ionization** time-of-flight **mass spectrometry** could be used as a tool to perform rapid screening of chemically altered proteins in small volumes of biological fluids.

- CC Nervous System - General; Methods *20501
Biochemical Methods - General *10050
 Biochemical Studies - General *10060
- BC Hominidae 86215
- IT Major Concepts
 Methods and Techniques; Nervous System (Neural Coordination)
- IT Parts, Structures, & Systems of Organisms
 cerebrospinal fluid: nervous system
- IT Diseases
 multiple sclerosis: immune system disease, nervous system disease; stroke: nervous system disease, vascular disease; Alzheimer's disease: behavioral and mental disorders, nervous system disease
- IT Chemicals & Biochemicals
 proteins
- IT Methods & Equipment
 high-accuracy **peptide mass** mapping:
 Analysis/Characterization Techniques: CB, analytical method;
matrix-assisted laser desorption/ionization time-of-flight **mass spectrometry**
 : analytical method, spectroscopic techniques: CB; microbore-reversed phase high performance liquid **chromatography**: fractionation method, liquid **chromatography**; mu-RPC C2/C18 column:
 Pharmacia, laboratory equipment; seed layer method: preparation method, specimen preparation techniques; Reflex **MALDI-TOF** **mass spectrometer**: Bruker-Franzen Analytik GmbH,
 laboratory equipment; SMART system: Pharmacia LKB Biotechnology Uppsala, laboratory equipment; Western blot: analytical method, gene mapping, detection/labeling techniques
- IT Miscellaneous Descriptors
 database searching; mass resolution
- ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
- ORGN Organism Name
 human (Hominidae): patient
- ORGN Organism Superterms
 Animals; Chordates; Humans; Mammals; Primates; Vertebrates
- L92 ANSWER 16 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1998:297352 BIOSIS
 DN PREV199800297352
 TI Routine **identification** of proteins from sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) gels or polyvinyl difluoride membranes using **matrix assisted laser desorption/ionization**-time of flight-**mass spectrometry** (**MALDI-TOF-MS**).
- AU Fernandez, Joseph; Gharahdaghi, Farzin; Mische, Sheenah M. (1)
 CS (1) Rockefeller Univ., P.O. Box 105, 1230 York Ave., New York, NY 10021 USA
 USA
- SO Electrophoresis, (May, 1998) Vol. 19, No. 6, pp. 1036-1045.
 ISSN: 0173-0835.
- DT Article
 LA English
- AB As the resource laboratory for Rockefeller University our emphasis continues to be on methodology development for the routine analysis of low abundance proteins isolated from native sources. In the past ten years, gel electrophoresis of proteins has become the method of choice for the

preparation of microgram and submicrogram quantities of protein for primary structural characterization, and over 95% of the samples submitted for protein identification are either in a gel or bound to polyvinyl difluoride membranes (PVDF). As such, we employ multiple microanalytical approaches encompassing Edman sequence degradation, amino acid and **matrix assisted laser desorption/ionization-time of flight (MALDI-TOF) mass spectrometric** analysis to provide an integrated protein characterization of such samples. Here we describe the two major services we employ when providing protein identification from in-gel or PVDF-bound proteins.

CC Biophysics - General Biophysical Techniques *10504
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064

IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques

IT Chemicals & Biochemicals
 protein: analysis

IT Methods & Equipment
 matrix assisted laser desorption/ionization-time of flight-mass spectrometry: analytical method, spectroscopic techniques;
 Applied Biosystems 470 instrument: equipment; Edman sequence degradation: sequencing method, sequencing techniques; Hewlett-Packard G1000A instrument: equipment; Perkin Elmer/Applied Biosystem 494 Procise instrument: equipment; SDS-polyacrylamide gel electrophoresis: analysis/characterization techniques, analytical method, electrophoretic techniques; 492 Procise CLC high performance liquid chromatography system: Perkin Elmer/Applied Biosystems, equipment

IT Miscellaneous Descriptors
 polyvinyl difluoride membranes

RN 7440-23-5 (SODIUM)

L92 ANSWER 17 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1998:297345 BIOSIS
 DN PREV199800297345

TI **Rapid identification** of comigrating gel-isolated proteins by ion trap-mass spectrometry.

AU Arnott, David; Henzel, William J.; Stults, John T. (1)
 CS (1) Genentech Inc., 1 DNA Way, South San Francisco, CA 94080 USA
 SO Electrophoresis, (May, 1998) Vol. 19, No. 6, pp. 968-980.
 ISSN: 0173-0835.

DT Article
 LA English

AB In the search for novel nuclear binding proteins, two bands from a sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) gel were analyzed and each was found to contain a number of proteins that subsequently were identified by tandem **mass spectrometry** (MS/MS) on a quadrupole ion trap instrument. The bands were digested with trypsin in situ on a polyvinylidene difluoride (PVDF) membrane following electroblot transfer. Analysis of a 2.5% aliquot of each **peptide** mixture by **matrix assisted laser desorption/ionization-mass spectrometry** (MALDI-MS) followed by an initial database search with the **peptide masses** failed to identify the proteins. The **peptides** were separated by reversed-phase capillary high performance liquid **chromatography** (HPLC) in anticipation of subsequent Edman degradation, but **mass** analysis of the **chromatographic** fractions by MALDI-MS revealed multiple, coeluting **peptides** that precluded this approach. Selected fractions were analyzed by capillary HPLC-electrospray ionization-ion trap **mass spectrometry**. Tandem **mass spectrometry** provided significant fragmentation from which full or partial sequence was deduced for a number of **peptides**. Two stages of fragmentation (MS) were used in one case

to determine additional sequence. Database searches, each using a single **peptide mass** plus partial sequence, identified four proteins from a single electrophoretic band at 45 kDa, and four proteins from a second band at 60 kDa. Many of these proteins were derived from human keratin. The protein identifications were corroborated by the presence of multiple matching **peptide masses** in the **MALDI-MS** spectra. In addition, a novel sequence, not found in protein or DNA databases, was determined by interpretation of the MS/MS data. These results demonstrate the power of the quadrupole ion trap for the identification of multiple proteins in a mixture, and for de novo determination of **peptide** sequence. Reanalysis of the fragmentation data with a modified database searching algorithm showed that the same sets of proteins were identified from a limited number of fragment ion **masses**, in the absence of **mass** spectral interpretation or amino acid sequence. The implications for protein identification solely from fragment ion **masses** are discussed, including advantages for low signal levels, for a reduction of the necessary interpretation expertise, and for increased speed.

- CC Biophysics - General Biophysical Techniques *10504
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
- IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
- IT Chemicals & Biochemicals
 comigrating gel-isolated proteins: analysis
- IT Methods & Equipment
 high performance liquid **chromatography** system: Waters
 Associates, equipment; ion trap-**mass spectrometry**:
 analytical method, spectroscopic techniques; **matrix**
 assisted laser desorption-ionization mass spectrometry: analytical
 method, spectroscopic techniques; protein analysis: analytical method,
 methodological approach; HPLC [high performance liquid
 chromatography]: analysis/characterization techniques,
 analytical method, **chromatographic** techniques;
 SDS-polyacrylamide gel electrophoresis: analytical method,
 electrophoretic techniques
- L92 ANSWER 18 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1998:297017 BIOSIS
 DN PREV199800297017
- TI **Peptide mass fingerprint** sequence coverage
 from differently stained proteins on two-dimensional electrophoresis
 patterns by **matrix assisted laser desorption/ionization-mass spectrometry** (**MALDI-MS**).
- AU Scheler, Christian; Lamer, Stephanie; Pan, Zaoming; Li, Xin-Ping;
 Salnikow, Johannes; Jungblut, Peter (1)
- CS (1) Max-Planck-Inst. Infectionbiol., Proteinanalysis, Monbijoustr. 2,
 D-10117 Berlin Germany
- SO Electrophoresis, (May, 1998) Vol. 19, No. 6, pp. 918-927.
 ISSN: 0173-0835.
- DT Article
- LA English
- AB Identification of proteins separated by two-dimensional electrophoresis (2-DE) is a necessary task to overcome the purely descriptive character of 2-DE and a prerequisite to the construction of 2-DE databases in proteome projects. **Matrix assisted laser desorption/ionization-mass spectrometry** (**MALDI-MS**) has a sensitivity for peptide detection in the lower fmol range, which should be sufficient for an analysis of even weakly silver-stained protein spots by **peptide mass** fingerprinting. Unfortunately, proteins are modified by the silver staining procedure, leading to low sequence coverage. Omission of glutaraldehyde increased the sequence coverage, but this improved sequence coverage is still clearly below the sequence

coverage starting with Coomassie Brilliant Blue (CBB) R-250-stained spots. Other factors additionally seem to modify proteins during silver staining. By decreasing the protein amount, the advantage of very sensitive detection on the gel is lost during identification, because the resulting low sequence coverage is not sufficient for secure identification. Low-quantity proteins can be identified better starting with CBB G-250 or Zn-imidazol-stained proteins. In contrast, for high-quantity CBB R-250-stained spots, a sequence coverage of up to 90% can be obtained by using only one cleaving enzyme, and up to 80% was reached for medium-quantity spots after combination of tryptic digest with Asp-N- and Glu-C digest.

- CC Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biophysics - General Biophysical Techniques *10504
- IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
- IT Chemicals & Biochemicals
 protein: analysis
- IT Methods & Equipment
 matrix assisted laser desorption
 /ionization-mass spectrometry: analytical method, spectroscopic techniques; **peptide mass fingerprint sequencing**: sequencing method, sequencing techniques; **silver staining**: detection/labeling techniques, labeling method; **time-of-flight-matrix assisted laser desorption/ionization mass spectrometer**: equipment; two-dimensional electrophoresis: analytical method, electrophoretic techniques; HPLC [high performance liquid chromatography]: analysis/characterization techniques, analytical method, **chromatographic** techniques
- RN 7440-22-4 (SILVER)
- L92 ANSWER 19 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1998:266609 BIOSIS
 DN PREV199800266609
- TI Comprehensive two-dimensional high-performance liquid chromatography for the isolation of overexpressed proteins and proteome mapping.
- AU Opiteck, Gregory J.; Ramirez, Suzanne M.; Jorgenson, James W. (1);
 Moseley, M. Arthur, III
 CS (1) Dep. Chem., Univ. North Carolina Chapel Hill, Venable Hall, CB 3290, Chapel Hill, NC 27599-3290 USA
- SO Analytical Biochemistry, (May 1, 1998) Vol. 258, No. 2, pp. 349-361.
 ISSN: 0003-2697.
- DT Article
 LA English
- AB A two-dimensional liquid chromatographic system is described here which uses size-exclusion liquid chromatography (SEC) followed by reversed-phase liquid chromatography (RPLC) to separate the mixture of proteins resulting from the lysis of Escherichia coli cells and to isolate the proteins that they produce. The size-exclusion chromatography can be conducted under either denaturing or nondenaturing conditions. Peaks eluting from the first dimension are automatically subjected to reversed-phase chromatography to separate similarly sized proteins on the basis of their various hydrophobicities. The RPLC also serves to desalt the analytes so that they can be detected in the deep ultraviolet region at 215 nm regardless of the SEC mobile phase used. The two-dimensional (2D) chromatograms produced in this manner then strongly resemble the format of stained 2D gels, in that spots are displayed on a X-Y axis and intensity represents quantity of analyte. Following chromatographic separation, the analytes are deposited into six 96-well (576 total) polypropylene microtiter plates via a fraction collector. Interesting fractions are analyzed by **matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI)**

-TOF/MS) or electrospray mass spectrometry (ESI/MS) depending on sample concentration, which both yield accurate (2 to 0.02%) molecular weight information on intact proteins without any additional sample preparation, electroblotting, destaining, etc. The remaining 97% of a fraction can then be used for other analyses, such Edman sequencing, amino acid analysis, or proteolytic digestion and sequencing by tandem mass spectrometry. This 2D HPLC protein purification and identification system was used to isolate the src homology (SH2) domain of the nonreceptor tyrosine kinase pp60c-src and beta-lactamase, both inserted into E. coli, as well as a number of native proteins comprising a small portion of the E. coli proteome.

- CC Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504
 Physiology and Biochemistry of Bacteria *31000
- BC Enterobacteriaceae 06702
- IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
- IT Chemicals & Biochemicals
 proteins: isolation
- IT Methods & Equipment
 electrospray mass spectrometry: analytical method,
 spectroscopic techniques; matrix-assisted
 laser desorption ionization time-of-flight
 mass spectrometry: analytical method, spectroscopic
 techniques; reversed-phase liquid chromatography UV
 detection: chromatography, separation method; size-exclusion
 chromatography: chromatographic techniques,
 separation method; two-dimensional high-performance liquid
 chromatography: chromatography, separation method;
 API100 single quadrupole mass spectrometer:
 equipment; Edman sequencing: sequencing method, sequencing techniques
- IT Miscellaneous Descriptors
 proteome mapping
- ORGN Super Taxa
 Enterobacteriaceae: Facultatively Anaerobic Gram-Negative Rods,
 Eubacteria, Bacteria, Microorganisms
- ORGN Organism Name
 Escherichia-colis (Enterobacteriaceae)
- ORGN Organism Superterms
 Bacteria; Eubacteria; Microorganisms
- L92 ANSWER 20 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1998:130807 BIOSIS
 DN PREV199800130807
 TI Development of liquid chromatography-mass
 spectrometry using continuous-flow matrix-
 assisted laser desorption ionization
 time-of-flight mass spectrometry.
 AU Whittal, Randy M.; Russon, Larry M.; Li, Liang (1)
 CS (1) Dep. Chem., Univ. Alberta, Edmonton, AB T6G 2G2 Canada
 SO Journal of Chromatography A, (Jan. 23, 1998) Vol. 794, No. 1-2, pp.
 367-375.
 ISSN: 0021-9673.
 DT Article
 LA English
 AB The general approach of combining liquid chromatography (LC)
 with matrix-assisted laser
 desorption ionization (MALDI) mass
 spectrometry for on-line detection of peptides and
 proteins based on the use of a continuous-flow (cf) probe is presented.
 Recent advances in time-of-flight mass spectrometric
 instrumentation for cf-MALDI are reported. Using 3-nitrobenzyl
 alcohol (3-NBA) as the liquid matrix, stable flow can be readily
 achieved and the three-port interface does not introduce
 chromatographic peak shape degradation for LC-MS. Separation and
 detection of low picomoles of peptides and proteins can be done

with cf-**MALDI**-LC-MS. Parallel ion extraction and time-lag focusing are shown to provide enhanced performance with regard to **mass** resolution. However, **mass** resolution is generally poor for proteins with **masses** above apprx 6000 u. Strong adduct ion formation with the use of 3-NBA as the liquid **matrix** is believed to be the main cause of this resolution reduction. It is argued that cf-**MALDI** is a technically viable approach for LC-MS, but the overall performance and wide use of this method depend on the discovery of new liquid **matrices** that are suitable for continuous flow and provide much enhanced utility for **MALDI** over 3-NBA, particularly for proteins.

CC **Biophysics - General Biophysical Techniques** *10504
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
 IT Chemicals & Biochemicals
 peptides; proteins
 IT Methods & Equipment
 continuous-flow **matrix-assisted laser desorption ionization** time-of-flight **mass spectrometry**: analytical method; liquid **chromatography**
 -**mass spectrometry**: analytical method, development

L92 ANSWER 21 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1998:14113 BIOSIS
 DN PREV199800014113
 TI **Laser desorption mass spectrometry**
 .
 AU Moore, William T. (1)
 CS (1) Protein Chem. Lab., Dep. Pathol. Lab. Med., Sch. Med., Univ. Pennsylvania, Philadelphia, PA 19104 USA
 SO Fields, G. B. [Editor]. Methods in Enzymology, (1997) Vol. 289, pp. 520-542. Methods in Enzymology; Solid-phase peptide synthesis. Publisher: Academic Press, Inc. 1250 Sixth Ave., San Diego, California 92101, USA.
 ISSN: 0076-6879. ISBN: 0-12-182190-0.
 DT Book
 LA English
 CC **Biochemical Methods - General** *10050
 Biochemical Studies - General *10060
 IT Major Concepts
 Methods and Techniques
 IT Methods & Equipment
 automated **peptide** synthesis: synthetic method; enzymatic treatment: analytical method; high performance liquid **chromatography**: analytical method; **matrix-assisted laser desorption-ionization mass spectrometry**: analytical method
 IT Miscellaneous Descriptors
 disulfide bond formation; sample preparation; synthetic **peptide** racemization; Book Chapter
 RN 16734-12-6 (DISULFIDE)

L92 ANSWER 22 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1997:407482 BIOSIS
 DN PREV199799713685
 TI Identification of proteins by **matrix-assisted laser desorption ionization-mass spectrometry** following in-gel digestion in low-salt, nonvolatile buffer and simplified **peptide** recovery.
 AU Fountoulakis, Michael; Langen, Hanno (1)
 CS (1) F. Hoffmann-La Roche Ltd., Pharm. Res. Gene Technol., Basel Switzerland
 SO Analytical Biochemistry, (1997) Vol. 250, No. 2, pp. 153-156.
 ISSN: 0003-2697.

DT Article
 LA English
 AB **Matrix-assisted laser desorption ionization-mass spectrometry** is an efficient analytical method for large-scale identification of proteins separated by two-dimensional polyacrylamide gel electrophoresis. Following in-gel digestion, the salt present in the **peptide** extracts is usually removed by **chromatography** prior to analysis. Desalting is a labor-intensive and time-consuming step, limiting the total number of samples that can be processed daily. We improved the daily sample output by performing the in-gel protein digestion in low-salt, nonvolatile buffer and simplifying the recovery of the generated **peptides**, collecting them in a small volume by sonication. This technique is routinely used for identification of proteins of *Haemophilus influenzae* and human brain. The methodology described facilitates the analytical process and allows the analysis of hundreds of proteins per day. Furthermore, it represents an essential step toward process automation.

CC Radiation - Radiation and Isotope Techniques *06504
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Studies *10502

BC Physiology and Biochemistry of Bacteria *31000
 BC Pasteurellaceae 06703
 BC Hominidae *86215

IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques;
 Physiology; Radiology (Medical Sciences)

IT Chemicals & Biochemicals
 POLYACRYLAMIDE

IT Miscellaneous Descriptors
 ANALYTICAL METHOD; BIOCHEMISTRY AND BIOPHYSICS;
 BRAIN; DIGESTION METHOD; IN-GEL DIGESTION; LARGE SCALE PROTEIN IDENTIFICATION; MATRIX-ASSISTED LASER DESORPTION IONIZATION-MASS SPECTROMETRY; METHODOLOGY; NERVOUS SYSTEM; NONVOLATILE LOW-SALT BUFFER; POLYACRYLAMIDE GEL ELECTROPHORESIS; SEPARATION METHOD; SIMPLIFIED PEPTIDE RECOVERY

ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia;
 Pasteurellaceae: Eubacteria, Bacteria

ORGN Organism Name
 human (Hominidae); *Haemophilus influenzae* (Pasteurellaceae)

ORGN Organism Superterms
 animals; bacteria; chordates; eubacteria; humans; mammals;
 microorganisms; primates; vertebrates

RN 9003-05-8 (POLYACRYLAMIDE)

L92 ANSWER 23 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1997:385385 BIOSIS
 DN PREV199799684588
 TI High-sensitivity **peptide mapping** by micro-LC with on-line membrane blotting and subsequent **detection** by scanning-IR-**MALDI** mass spectrometry.
 AU Eckerskorn, Christoph (1); Strupat, Kerstin; Kellermann, Josef; Lottspeich, Friedrich; Hillenkamp, Franz
 CS (1) Max-Planck-Inst. Biochem., 82152 Martinsried Germany
 SO Journal of Protein Chemistry, (1997) Vol. 16, No. 5, pp. 349-362.
 ISSN: 0277-8033.
 DT Article
 LA English
 AB A novel approach to the on-line **mass** determination of **peptides** from digested proteins by scanning infrared **matrix-assisted laser desorption/ionization** (scanning-IR-**MALDI**) is described. The **peptides** were continuously collected directly onto a PVDF (polyvinylidene fluoride) strip during a HPLC run. Individual

peptides were detected by lining up the PVDF strip with the UV trace from the HPLC run, using visible dye markers as reference points. The local resolution of the peptides on the PVDF membrane is preserved during matrix incubation for MALDI-MS as shown by comparing the UV chromatogram and the total ion current (TIC) from an on-line coupled electrospray ionization (ESI) mass spectrometer with the scanning-IR-MALDI data from the corresponding areas on the PVDF strip. The intensities of the mass profiles obtained by scanning-IR-MALDI reflect the amount of peptides present on the PVDF strip. The higher sensitivity of IR-MALDI-MS yielded mass information not detectable by ESI-MS. After the scanning-IR-MALDI experiment, the same membrane strip can be used directly for automated Edman degradation. Comparable initial and repetitive yields were obtained for blotted peptides with and without matrix incubation.

- CC Biochemical Methods - General *10050
 Biochemical Studies - General *10060
 Biophysics - General Biophysical Studies *10502
- IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
- IT Chemicals & Biochemicals
 POLYVINYLDENE FLUORIDE
- IT Miscellaneous Descriptors
 BIOCHEMISTRY AND BIOPHYSICS; HIGH-SENSITIVITY PEPTIDE MAPPING; MASS INFORMATION; METHODOLOGY; MICRO-LC; MICRO-LIQUID CHROMATOGRAPHY; PEPTIDE MAPPING METHOD; POLYVINYLDENE FLUORIDE MEMBRANE
- RN 24937-79-9 (POLYVINYLDENE FLUORIDE)
- L92 ANSWER 24 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1997:385360 BIOSIS
 DN PREV199799684563
- TI Sequencing of N-linked oligosaccharides directly from protein gels : In-gel deglycosylation followed by matrix-assisted laser desorption/ionization mass spectrometry and normal-phase high-performance liquid chromatography.
- AU Kuester, Bernhard; Wheeler, Susan F.; Hunter, Ann P.; Dwek, Raymond A.; Harvey, David J.
- CS Dep. Biochem., Oxford Glycobiol. Inst., Univ. Oxford, South Parks Rd., Oxford OX1 3QU UK
- SO Analytical Biochemistry, (1997) Vol. 250, No. 1, pp. 82-101.
 ISSN: 0003-2697.
- DT Article
 LA English
- AB A generally applicable, rapid, and sensitive method for profiling and sequencing of glycoprotein-associated N-linked oligosaccharides from protein gels was developed. The method employed sodium dodecyl sulfatepolyacrylamide gel electrophoresis (SDS-PAGE) for protein separation and purification and in-gel deglycosylation using PNGase F for glycan release. Profiles of the neutral glycans from bovine ribonuclease B, chicken ovalbumin, and human immunoglobulin G (IgG), as well as sialic acid-containing sugars (following esterification of the acidic groups) of bovine fetuin and bovine alpha-1-acid glycoprotein, were obtained by matrix-assisted laser desorption/ionization mass spectrometry (MALDI MS) and by normal-phase high-performance liquid chromatography following fluorescent labeling. Oligosaccharides were sequenced using specific exoglycosidases, and digestion products were analyzed by MALDI MS. Between 50 and 100 pmol (1.5 to 15 mu-g) of glycoprotein applied to the gel was sufficient to characterize its oligosaccharide contents. The identity of all glycoproteins investigated could be confirmed after deglycosylation by in-gel trypsin treatment followed by MALDI MS mass mapping and matching the measured molecular weights to a sequence database. The technique was used for the

characterization of the glycan moieties of human immunodeficiency virus recombinant gp120 (Chinese hamster ovary cells) and to monitor changes in the glycosylation of this glycoprotein when produced in the presence of a glucosidase I inhibitor. Furthermore, since heavy and light chains of IgG became separated by SDS-PAGE, it could be established that most glycans were associated with the heavy chains.

CC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Methods - Carbohydrates *10058
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biochemical Studies - Carbohydrates *10068
 Biophysics - General Biophysical Techniques *10504
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
 IT Miscellaneous Descriptors
 ANALYTICAL METHOD; BIOCHEMISTRY AND BIOPHYSICS;
 GLYCOPROTEIN-ASSOCIATED N-LINKED OLIGOSACCHARIDES; HUMAN
 IMMUNODEFICIENCY VIRUS RECOMBINANT GP120; IMMUNOGLOBULIN G; IN-GEL
 DEGLYCOSYLATION; MATRIX-ASSISTED LASER
 DESORPTION/IONIZATION MASS
 SPECTROMETRY; METHODOLOGY; NORMAL-PHASE HIGH PERFORMANCE LIQUID
 CHROMATOGRAPHY; PURIFICATION METHOD; SAMPLE PROCESSING METHOD;
 SDS-POLYACRYLAMIDE GEL ELECTROPHORESIS; SEPARATION METHOD; SEQUENCING

L92 ANSWER 25 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1997:243615 BIOSIS
 DN PREV199799542818
 TI Isolation and characterization of proteins from human **lymphocyte** nuclei using **matrix-assisted laser desorption/ionization** time-of-flight mass spectrometry and post-source decay analysis.
 AU Nilsson, Carol L. (1); Murphy, Constance M.; Ekman, Rolf
 CS (1) Dep. Neurochemistry, Univ. Goteborg, S-431 80 Molndal Sweden
 SO Rapid Communications in Mass Spectrometry, (1997) Vol. 11, No. 6, pp. 610-612.
 ISSN: 0951-4198.
 DT Article
 LA English
 AB The cell nucleus plays an essential role in all aspects of cell function, including DNA replication, gene transcription, RNA processing and cell division. Within the cell nucleus there are many proteins and peptides that have regulatory roles. Although several higher molecular weight protein components (gt 30 kDa) have been identified and characterized, limited information is available for the lower molecular weight components. Nuclei from human peripheral blood lymphocytes were isolated and rapidly characterized by employing a strategy using reversed-phase high-performance liquid chromatography, tryptic digestion, and post-source decay analysis of matrix-assisted laser desorption/ionization (**MALDI**) ions in combination with database searches. Database searches utilizing molecular weight, proteolytic digest fragments, and peptide sequence results identified known proteins. The results illustrate the usefulness of **MALDI** as a tool in the characterization of low abundance proteins in the cell nucleus.
 CC Cytology and Cytochemistry - Human *02508
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504
 Biophysics - Molecular Properties and Macromolecules *10506
 Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
 BC Hominidae *86215
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Blood and Lymphatics (Transport and Circulation); Cell Biology; Methods and Techniques
 IT Miscellaneous Descriptors
 ANALYSIS; **ANALYTICAL METHOD; BIOCHEMISTRY AND**

BIOPHYSICS; BLOOD AND LYMPHATICS; CHARACTERIZATION; IMMUNE SYSTEM;
 ISOLATION; **MATRIX-ASSISTED LASER DESORPTION/IONIZATION TIME-OF-FLIGHT MASS SPECTROMETRY**; METHODOLOGY; NUCLEAR PROTEINS; PERIPHERAL BLOOD LYMPHOCYTES; POST-SOURCE DECAY ANALYSIS

ORGN Super Taxa

Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name

human (Hominidae)

ORGN Organism Superterms

animals; chordates; humans; mammals; primates; vertebrates

L92 ANSWER 26 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1996:456719 BIOSIS

DN PREV199699179075

TI Determination of bacterial protein profiles by **matrix-assisted laser desorption/ionization mass spectrometry** with high-performance liquid chromatography.

AU Liang, Xiaoli; Zheng, Kefei; Qian, Mark G.; Lubman, David M. (1)

CS (1) Dep. Chem., Univ. Michigan, Ann Arbor, MI 48109-1055 USA

SO Rapid Communications in Mass Spectrometry, (1996) Vol. 10, No. 10, pp. 1219-1226.

ISSN: 0951-4198.

DT Article

LA English

CC Cytology and Cytochemistry - Animal *02506

Biochemical Methods - Proteins, Peptides and Amino Acids *10054

Biochemical Studies - Proteins, Peptides and Amino Acids *10064

Biophysics - General Biophysical Techniques *10504

Physiology and Biochemistry of Bacteria *31000

Microbiological Apparatus, Methods and Media *32000

BC Bacteria - General Unspecified 05000

Lepidoptera *75330

IT Major Concepts

Biochemistry and Molecular Biophysics; Cell Biology; Methods and Techniques; Physiology

IT Miscellaneous Descriptors

ANALYTICAL METHOD; BACTERIAL PROTEIN PROFILING; BIOCHEMISTRY AND BIOPHYSICS; CAPILLARY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY; DETECTION; DISCRIMINATION; EXPRESSION MONITORING; EXPRESSION VECTOR; HSP27; MATRIX-ASSISTED LASER DESORPTION/IONIZATION MASS SPECTROMETRY; METHODOLOGY; PROTEIN; PURIFICATION METHOD; UV ABSORPTION DETECTOR

ORGN Super Taxa

Bacteria - General Unspecified: Eubacteria, Bacteria; Lepidoptera: Insecta, Arthropoda, Invertebrata, Animalia

ORGN Organism Name

bacteria (Bacteria - General Unspecified); SF9 (Lepidoptera): cell line

ORGN Organism Superterms

animals; arthropods; bacteria; eubacteria; insects; invertebrates; microorganisms

L92 ANSWER 27 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1996:391041 BIOSIS

DN PREV199699113397

TI **Matrix-assisted laser desorption ionization mass spectrometry as a complement to internal protein sequencing.**

AU Williams, Kenneth R.; Samandar, Suzy M.; Stone, Kathryn L.; Saylor, Melissa; Rush, John

CS Biotechnol. Resource Lab., Yale Univ., New Haven, CT USA

SO Walker, J. M. [Editor]. (1996) pp. 541-555. The protein protocols handbook.

Publisher: Humana Press Inc. Suite 808, 999 Riverview Drive, Totowa, New

Jersey 07512, USA.
 ISBN: 0-89603-339-2 (paper), 0-89603-338-4 (cloth).

DT Book
 LA English
 CC Radiation - Radiation and Isotope Techniques *06504
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504

IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques;
 Radiology (Medical Sciences)

IT Chemicals & Biochemicals
 SECRETIN

IT Miscellaneous Descriptors
 ANALYTICAL METHOD; BOOK CHAPTER; GRAM-S;
 PEPTIDE-Y; PURIFICATION METHOD; REVERSE-PHASE HIGH PERFORMANCE
 LIQUID CHROMATOGRAPHY; SECRETIN

RN 1393-25-5 (SECRETIN)

L92 ANSWER 28 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1996:375570 BIOSIS
 DN PREV199699097926
 TI Mass spectrometric characterization of glycosylated interferon-gamma variants separated by gel electrophoresis.
 AU Mortz, Ej vind; Sareneva, Timo; Julkunen, Sophie Ii Haebelkka; Roepstorff, Peter (1)
 CS (1) Dep. Molecular Bio., Odense Univ., Campusvej 55, DK-5230 Odense M Denmark
 SO Electrophoresis, (1996) Vol. 17, No. 5, pp. 925-931.
 ISSN: 0173-0835.
 DT Article
 LA English
 AB Glycosylated proteins in polyacrylamide gels were characterized by matrix-assisted laser desorption ionization mass spectrometry (MALDI-MS) and glycosidase digestion. Sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) of natural, human interferon- γ (IFN- γ) showed two glycosylated variants with apparent molecular masses of 20 and 24 kDa. MALDI-MS of the intact IFN- γ , electroeluted from the two bands, confirmed that these correspond to IFN- γ molecules glycosylated at one or both of the two potential glycosylation sites, respectively. The peptide map obtained by MALDI-MS after digestion in the gel covers 92% of the IFN- γ sequence and revealed an N-terminal pyroglutamate residue and one oxidized methionine residue. One glycosylated peptide was detected after treatment of the peptide mixture with neuraminidase, and the carbohydrate structure partially elucidated by sequential glycosidase digestion monitored by MALDI-MS. A second glycosylated peptide, due to a very heterogeneous glycan structure, could only be observed after separation of the peptides by high performance liquid chromatography (HPLC).
 CC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biophysics - General Biophysical Techniques *10504
 Biophysics - Molecular Properties and Macromolecules *10506
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
 IT Miscellaneous Descriptors
 ANALYTICAL METHOD; BIOCHEMISTRY AND MOLECULAR BIOPHYSICS; CHARACTERIZATION; GEL ELECTROPHORESIS; GLYCOSYLATED INTERFERON-GAMMA VARIANTS; HUMAN INTERFERON-GAMMA; MATRIX-ASSISTED LASER DESORPTION
 IONIZATION MASS SPECTROMETRY; METHODS AND TECHNIQUES; PURIFICATION METHOD

L92 ANSWER 29 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1996:375569 BIOSIS

DN PREV199699097925
 TI Structural analysis and identification of gel-purified proteins, available in the femtomole range, using a novel computer program for peptide sequence assignment, by matrix-assisted laser desorption ionization -reflectron time-of-flight-mass spectrometry.
 AU Gevaert, Kris; Verschelde, Jean-Luc; Puype, Magda; Van Damme, Jozef; Goethals, Marc; De Boeck, Stefan; Vandekerckhove, Joel (1)
 CS (1) Flanders Interuniv. Inst. Biotechnol., Dep. Biochemistry, Fac. Med., Univ. Gent, Ledeganckstraat 35, B-9000 Gent Belgium
 SO Electrophoresis, (1996) Vol. 17, No. 5, pp. 918-924.
 ISSN: 0173-0835.
 DT Article
 LA English
 AB A procedure is described for structural characterization and identification of proteins, purified by either one- or two-dimensional gel electrophoresis in the low picomole to femtomole range. The purified proteins are first detected in the primary gels by the sensitive reverse staining procedure described by Fernandez-Patron et al. (Anal. Biochem. 1995, 224, 203-211) and consecutively reeluted from combined gel pieces and concentrated in the tip of a Pasteur pipette in a secondary gel matrix consisting of either sodium dodecyl sulfate-polyacrylamide or agarose. The concentrated proteins are in-matrix-digested and the resulting peptides are separated by reverse-phase high performance liquid chromatography (HPLC) combined with microsequencing or analyzed by matrix-assisted laser desorption ionization - time of flight - mass spectrometry. Protein identification is based on sequence homology or on the peptide mass pattern. The matching peptide sequences can additionally be verified by matching their measured post-source decay spectra with the calculated fragmentation patterns of the isobaric candidate peptides appearing on the search list. This is done by a computer program referred to as MassFrag, described in this paper. We demonstrate that it is possible to identify protein that are only available in the femtomole range and whose sequences are stored in nonredundant protein databases or nucleotide and expressed sequence tag databases.
 CC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biophysics - General Biophysical Techniques *10504
 Biophysics - Molecular Properties and Macromolecules *10506
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques
 IT Miscellaneous Descriptors
 ANALYTICAL METHOD; BIOCHEMISTRY AND MOLECULAR BIOPHYSICS; COMPUTER PROGRAM; IDENTIFICATION; MASSFRAG; MATRIX -ASSISTED LASER DESORPTION IONIZATION-REFLECTRON TIME-OF-FLIGHT-MASS SPECTROMETRY; METHODS AND TECHNIQUES; PICOMOLE TO FEMTOMOLE QUANTITY; PROTEIN; PURIFICATION METHOD; REVERSED-PHASE HIGH PERFORMANCE LIQUID CHROMATOGRAPHY; SEQUENCE ASSIGNMENT METHOD; STRUCTURAL ANALYSIS
 L92 ANSWER 30 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1996:375565 BIOSIS
 DN PREV199699097921
 TI Application of combined mass spectrometry and partial amino acid sequence to the identification of gel-separated proteins.
 AU Patterson, Scott D. (1); Thomas, Didier; Bradshaw, Ralph A.
 CS (1) Amgen Inc., Protein Structure, Amgen Cent., Mail Stop 14-2-E, 1840 DeHavilland Drive, Thousand Oaks, CA 91320-1789 USA
 SO Electrophoresis, (1996) Vol. 17, No. 5, pp. 877-891.
 ISSN: 0173-0835.
 DT Article
 LA English
 AB The combined use of peptide mass information with amino acid sequence information derived by chemical sequencing or

mass spectrometry (MS)-based approaches provides a powerful means of protein identification. We have used a two-part strategy to identify proteins from nerve growth factor (NGF)-stimulated rat adrenal pheochromocytoma cell line PC-12 cell lysates that associate with the adaptor protein Shc (Shc homologous and collagen protein). Initial experiments with metabolically radiolabeled cell extracts separated by sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) revealed a number of proteins that coimmunoprecipitated with anti-Shc antibody compared with control (unstimulated) cell extracts. The experiment was scaled up and cell lysate from NGF-stimulated PC-12 cells was applied to a glutathione-S-transferase (GST)-Shc affinity column, eluted, separated by SDS-PAGE and blotted to Immobilon-CD. The blotted proteins were proteolytically digested *in situ*, and the **masses** obtained from the extracted **peptides** were used in a **peptide-mass** search program in an attempt to identify the protein. Even if a strong candidate was found using this search, an additional step was performed to confirm the identification. The mixtures were fractionated by reversed-phase high-performance liquid chromatography (RP-HPLC) and subjected to chemical sequencing to obtain (partial) sequence information, or postsource decay (PSD)-matrix-assisted laser-desorption ionization (MALDI)-MS to obtain sequence-specific fragment ions. This data was used in a **peptide**-sequence tag search to confirm the identity of the proteins. This combined approach allowed identification of four proteins of M-r 43,000 to 200,000. In one case the identified protein clearly did not correspond to the radiolabeled band, but to a protein contaminant from the column. The advantages and pitfalls of the approach are discussed.

CC Cytology and Cytochemistry - Animal *02506
 BC Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 BC Biophysics - General Biophysical Techniques *10504
 BC Muridae *86375
 IT Major Concepts
 Cell Biology; Methods and Techniques
 IT Miscellaneous Descriptors
 AFFINITY COLUMN CHROMATOGRAPHY; AMINO ACID SEQUENCING;
 ANALYTICAL METHOD; BIOCHEMISTRY AND MOLECULAR
 BIOPHYSICS; MALDI-MS; MASS; MASS
 SPECTROMETRY; METHODS AND TECHNIQUES; POST-SOURCE DECAY
 MATRIX-ASSISTED LASER-DESORPTION
 IONIZATION MASS SPECTROMETRY; PROTEIN;
 PURIFICATION METHOD; REVERSED-PHASE HIGH PERFORMANCE LIQUID
 CHROMATOGRAPHY; RP-HPLC; SDS-POLYACRYLAMIDE GEL ELECTROPHORESIS
 ORGN Super Taxa
 Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
 ORGN Organism Name
 PC-12 (Muridae): cell line
 ORGN Organism Superterms
 animals; chordates; mammals; nonhuman mammals; nonhuman vertebrates;
 rodents; vertebrates

L92 ANSWER 31 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1995:403424 BIOSIS
 DN PREV199598417724
 TI Evaluation of mass spectrometric techniques for characterization of **engineered** proteins.
 AU Roepstorff, Peter (1); Schram, Karl H.; Andersen, Jens S.; Rafn, Kate;
 Baldursson, Trausti; Kroll, Jenny; Poulsen, Kjeld; Knudsen, Jens;
 Kristiansen, Karsten
 CS (1) Dep. Molecular Biol., Odense Univ., DK-5230 Odense M Denmark
 SO Molecular Biotechnology, (1995) Vol. 4, No. 1, pp. 1-12.
 ISSN: 1073-6085.
 DT Article
 LA English
 AB Mass spectrometric characterization of engineered proteins has been examined using bovine recombinant Acyl-CoA-Binding Protein (rACBP),

(15N)-labeled rACBP, and a number of sequence variants of ACBP produced by site-directed mutagenesis. The mass spectrometric techniques include ESIMS and **MALDIMS** for analysis of the intact protein. **Peptide** maps have been obtained either by direct analysis of enzymatically derived mixtures by PDMS, ESIMS, and **MALDIMS** or by off- and on-line HPLC-mass spectrometry. ESIMS was found to be most accurate for analysis of intact proteins. The best sequence coverage in mapping was obtained by LC-ESIMS and by direct mixture analysis by **MALDIMS**. The latter technique was favorable in terms of sensitivity and speed. A general strategy for mass spectrometric characterization of engineered proteins is suggested.

- CC Methods, Materials and Apparatus, General - Laboratory Methods *01004
 Genetics and Cytogenetics - General *03502
 Genetics and Cytogenetics - Animal 03506
 Radiation - Radiation and Isotope Techniques *06504
 Comparative Biochemistry, General *10010
 Biochemical Methods - General 10050
 Biochemical Methods - Nucleic Acids, Purines and Pyrimidines *10052
Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - General 10060
 Biochemical Studies - Nucleic Acids, Purines and Pyrimidines 10062
Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Replication, Transcription, Translation *10300
Biophysics - General Biophysical Techniques *10504
 Biophysics - Molecular Properties and Macromolecules *10506
 Enzymes - Methods *10804
 Metabolism - Proteins, Peptides and Amino Acids *13012
 Genetics of Bacteria and Viruses *31500
- IT Major Concepts
 Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and Molecular Biophysics); Genetics; Metabolism; Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics); Radiology (Medical Sciences)
- IT Sequence Data
 amino acid sequence; molecular sequence data
- IT Miscellaneous Descriptors
ANALYTICAL METHOD; GENETIC ENGINEERING; HIGH PERFORMANCE LIQUID CHROMATOGRAPHY; METHOD SENSITIVITY; METHODS; MOLECULAR BIOTECHNOLOGY; PEPTIDE MAPS; RADIOLABELING
- L92 ANSWER 32 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1995:58848 BIOSIS
 DN PREV199598073148
 TI Analysis of two-dimensional gel proteins by mass spectrometry and microsequencing.
 AU Henzel, William J.; Grimley, Christopher; Bourell, James H.; Billeci, Todd M.; Wong, Susan C.; Stults, John T.
 CS Dep. Protein Chem., Genentech Inc., South San Francisco, CA 94080-4990 USA
 SO Methods (Orlando), (1994) Vol. 6, No. 3, pp. 239-247.
 ISSN: 1046-2023.
 DT Article
 LA English
 AB A method for in situ digestion that allows high recovery of **peptides** at the low picomole level from two-dimensional gel electroblotted proteins is described. **Peptides** obtained from in situ digests were analyzed by **matrix-assisted laser desorption/ ionization** and **electrospray ionization mass spectrometry**. Mass analysis of **peptides** from digestion of single 2-D gel spots provided information sufficient to identify proteins from a protein sequence database using a fragment ion searching algorithm. Separation of these **peptides** by capillary HPLC allowed high recovery for **peptide** sequence analysis. The use of a microreaction cartridge in a gas-phase sequencer with a 37-min fast cycle enabled **peptide** sequencing by Edman degradation at the subpicomole level.
- CC Radiation - Radiation and Isotope Techniques *06504

Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504
 Biophysics - Molecular Properties and Macromolecules *10506
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques;
 Radiology (Medical Sciences)
 IT Miscellaneous Descriptors
 ANALYTICAL METHOD; CAPILLARY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY; EDMAN DEGRADATION; ELECTROSPRAY IONIZATION MASS SPECTROMETRY; MATRIX-ASSISTED LASER DESORPTION IONIZATION; SEQUENCE ANALYSIS
 L92 ANSWER 33 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1995:29901 BIOSIS
 DN PREV199598044201
 TI **Micromethods** for protein structure analysis.
 AU Shively, John E.
 CS City of Hope, Duarte, CA USA
 SO Methods (Orlando), (1994) Vol. 6, No. 3, pp. 207-212.
 ISSN: 1046-2023.
 DT Article
 LA English
 CC Radiation - Radiation and Isotope Techniques *06504
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504
 Biophysics - Molecular Properties and Macromolecules *10506
 IT Major Concepts
 Biochemistry and Molecular Biophysics; Methods and Techniques;
 Radiology (Medical Sciences)
 IT Miscellaneous Descriptors
 ANALYTICAL METHODS COMPARISON; CAPILLARY ELECTROPHORESIS; ELECTROSPRAY IONIZATION; LIQUID CHROMATOGRAPHY; MASS SPECTROMETRY; MATRIX-ASSISTED LASER DESORPTION IONIZATION-TIME-OF-FLIGHT; PURIFICATION METHODS COMPARISON; SECONDARY ION MASS SPECTROMETRY; SEQUENCE ANALYSIS
 L92 ANSWER 34 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1994:266063 BIOSIS
 DN PREV199497279063
 TI Identification of proteins in polyacrylamide **gels** by mass spectrometric **peptide** mapping combined with database search.
 AU Mortz, Ejvind (1); Vorm, Ole (1); Mann, Matthias; Roepstorff, Peter (1)
 CS (1) Dep. Mol. Biol., Odense Univ., Campusvej 55, 5230 Odense M Denmark
 SO Biological Mass Spectrometry, (1994) Vol. 23, No. 5, pp. 249-261.
 ISSN: 1052-9306.
 DT Article
 LA English
 AB **Mass spectrometric peptide** mapping of proteins separated by one-dimensional sodium dodecyl sulphate polyacrylamide gel electrophoresis has been investigated. The best results are obtained after blotting of the proteins onto polyvinylidene difluoride membranes followed by enzymatic digestion of the protein on the membrane. The **peptide** maps were investigated in terms of completeness and applicability for protein identification using a previously developed database search program as well as for the possibility for full characterization of covalent modifications in the proteins. The most complete **peptide** maps were obtained when the proteins were reduced and alkylated on the membrane prior to enzymatic digestion followed by separation of the resulting mixture by high performance liquid **chromatography** prior to **mass spectrometric** analysis. Such **peptide** maps cover up to 98% or the sequence and consequently may allow complete characterization of post-translational

modifications in proteins for which the amino acid sequence is known. The fastest and most sensitive procedure to obtain **peptide** maps sufficient for protein identification was direct analysis of the extracted **peptide** mixture by **matrix-assisted laser desorption ionization (MALDI) mass spectrometry**. The use of external and internal calibration of **MALDI** spectra for database searches is evaluated as well as the possibility of including a post-calibration routine within the search program.

CC General Biology - Information, Documentation, Retrieval and Computer Applications *00530
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504

IT Major Concepts
 Biochemistry and Molecular Biophysics; Information Studies; Methods and Techniques

IT Chemicals & Biochemicals
 POLYACRYLAMIDE

IT Miscellaneous Descriptors
ANALYTICAL METHOD

RN 9003-05-8 (POLYACRYLAMIDE)

L92 ANSWER 35 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1992:184606 BIOSIS
 DN BA93:95556

TI **ANALYSIS OF SYNTHETIC PEPTIDES USING MATRIX-ASSISTED LASER DESORPTION IONIZATION MASS SPECTROMETRY.**

AU STEINER V; BORNSEN K O; SCHÄER M; GASSMANN E; HOFFSTETTER-KUHN S; RINK H;
 MUTTER M

CS ANALYTICAL RES., K-127/132, CIBA-GEIGY LTD., CH-4002 BASEL, SWITZ.
 SO PEPT RES, (1992) 5 (1), 25-29.
 CODEN: PEREEO. ISSN: 1040-5704.

FS BA; OLD
 LA English

AB Matrix-assisted laser desorption ionization mass spectroscopy (LDI MS), a novel method for analysis of large molecules, has been used for characterization of synthetic **peptides** and their by-products. The potential of LDI MS is demonstrated by analyzing crude synthetic **peptides** representing typical members of newly designed **peptides** and proteins. In the first case, a fragment condensation reaction yielding a highly hydrophobic six-helix bundle template-assembled synthetic protein (TASP) is monitored. Then, a crude 19-mer **peptide** designed to adopt an amphiphilic α -helical structure and its by-products from SPPS are identified. Finally, analysis of crude hirulog-1, a 20-mer **peptide** designed as a thrombin inhibitor, using C18 reversed phase high performance liquid **chromatography** (RP HPLC), capillary electrophoresis (CE) and LDI MS, manifests the potential of the latter method.

CC Radiation - Radiation and Isotope Techniques *06504
 Biochemical Methods - Proteins, Peptides and Amino Acids *10054
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Biophysics - General Biophysical Techniques *10504

IT Miscellaneous Descriptors
 AMINO ACIDS REVERSED PHASE HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

L92 ANSWER 36 OF 36 BIOSIS COPYRIGHT 1999 BIOSIS
 AN 1991:427594 BIOSIS
 DN BA92:83759

TI **ANALYTICAL APPLICATIONS OF MATRIX-ASSISTED LASER DESORPTION AND IONIZATION MASS SPECTROMETRY.**

AU BORNSEN K O; SCHÄER M; GASSMANN E; STEINER V
 CENTRAL ANALYTICAL DEP., CIBA-GEIGY LTD, CH-4002 BASEL, SWITZ.

SO BIOL MASS SPECTROM, (1991) 20 (8), 471-478.
 CODEN: BIMSEH. ISSN: 1052-9306.

FS BA; OLD

LA English

AB **Matrix-assisted laser desorption ionization mass spectrometry** (LDI-MS) has been used successfully for monitoring and quality of control of a protein synthesis and for identification of by-products. In a first example it is shown that LDI-MS can be used to determine the amount and **mass** of the protein and the impurities in a commercially available protein product. The second example describes a protein synthesis where LDI-MS is the analytical method of choice which allows determination of the endpoint of the synthesis, the purity of the product and the obtained by-products. As a third example of synthesis of hirudin by recombinant DNA technology is shown where degraded r-hirudin with one or more missing amino acids are easily detected and distinguished from the complete r-hirudin. The **mass** determination and identification of the missing amino acids is presented. The results of LDI-MS are compared with results of state-of-the art analytical methods like reversed-phase high-performance liquid **chromatography**, sodium dodecyl sulphate-polyacrylamide gel electrophoresis, and capillary electrophoresis.

CC Radiation - Radiation and Isotope Techniques *06504
Biochemical Methods - Proteins, Peptides and Amino Acids *10054
Biochemical Studies - Proteins, Peptides and Amino Acids *10064
Biophysics - General Biophysical Techniques *10504

IT Miscellaneous Descriptors
 PROTEIN SYNTHESIS REVERSED-PHASE HIGH PERFORMANCE LIQUID
CHROMATOGRAPHY SDS-POLYACRYLAMIDE GEL ELECTROPHORESIS CAPILLARY ELECTROPHORESIS

=> fil hcplus
 FILE 'HCPLUS' ENTERED AT 09:15:32 ON 30 DEC 1999
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 1999 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications.

FILE COVERS 1967 - 30 Dec 1999 VOL 132 ISS 1
 FILE LAST UPDATED: 29 Dec 1999 (19991229/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

=> d his 193-

(FILE 'BIOSIS' ENTERED AT 09:07:02 ON 30 DEC 1999)

FILE 'HCPLUS' ENTERED AT 09:07:30 ON 30 DEC 1999
 L93 4790 S L61
 L94 805 S L93 AND ?CHROMATOG?
 L95 278 S L94 AND ?PEPTIDE?
 L96 6 S L95 AND P/DT
 L97 4 S L96 NOT FORSSMANN ?/AU
 L98 2 S L97 AND MOLECULAR ()(WEIGHT OR MASS)

L99 92 S L95 AND MOLECULAR ()(WEIGHT OR MASS)
 L100 89 S L99 NOT L96
 L101 23 S L100 AND (?MICROBOR? OR ?ELECTROSPRAY? OR ?ELECTRO SPRAY? OR
 L102 12 S L100 AND REVERSE
 L103 33 S L101,L102
 L104 33 S L103 NOT FORSMAN?/AU
 L105 8 S L104 AND 9/SC
 L106 10 S L98,L105
 L107 6 S L106 NOT (ASPERG? OR BRAUN OR OCULAR OR CALRETICUL?)/TI
 L108 7 S L98,L107
 L109 1 S L108 NOT L107

FILE 'HCAPLUS' ENTERED AT 09:15:32 ON 30 DEC 1999

=> d all tot 1108

L108 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 1999 ACS
 AN 1999:189279 HCAPLUS
 DN 130:220168
 TI Processes and kits for mass spectrometric determination of
polypeptides
 IN Little, Daniel; Koster, Hubert; Higgins, G. Scott; Lough, David
 PA Sequenom, Inc., USA
 SO PCT Int. Appl., 134 pp.
 CODEN: PIXXD2

DT Patent

LA English

IC ICM G01N033-68

CC 9-5 (Biochemical Methods)

Section cross-reference(s): 3, 14, 33

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9912040	A2	19990311	WO 1998-US18311	19980902
	WO 9912040	A3	19990902		
	W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			

PRAI AU 9891298 A1 19990322 AU 1998-91298 19980902
 US 1997-922201 19970902
 WO 1998-US18311 19980902

AB A process for detg. the identity of a target **polypeptide** using mass spectroscopy is provided. Depending on the target **polypeptide** to be identified, a process as disclosed can be used, for example, to diagnose a genetic disease or chromosomal abnormality, a predisposition to a disease or condition, or infection by a pathogenic organism; or for detg. identity or heredity. Kits for performing the disclosed processes also are provided. Human genomic DNA, extd. from blood of patients with spinal cerebellar ataxia 1, was amplified by PCR using forward and reverse primers contg. the T7 promoter sequence and a sequence encoding the His-6 tag **peptide**, resp., and hybridizing to sequences located on either side of the CAG trinucleotide repeat. The amplified DNA was subjected to in vitro transcription and translation, and the target **polypeptides** were isolated on a nickel chromatog. column. Mass spectrometric anal. of the **polypeptides** indicated that these **peptides** had mol. masses of 8238.8, 8865.4, and 8993.6 Da, corresponding to 10, 15, or 16 CAG (Asn) repeats. The **polypeptide** encoded by the nucleic acid from the fourth patient, having an unknown no. of trinucleotide repeats, had a mol. mass of 8224.8 Da. While this value does not correspond exactly with a unit no.

of repeats (10 is the closest), it is consistent with detection of a point mutation; i.e. the -14 Da shift for this **polypeptide** corresponds to an Ala to Gly mutation due to a C to G mutation in one of the repeats.

ST mass spectrometry detn protein; spinocerebellar ataxia CAG trinucleotide repeat protein mass spectrometry

IT Genes (animal)

RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (BRCA2, target **polypeptide** encoded by allelic variant of; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Nervous system diseases
(Machado-Joseph, target **polypeptide** encoded by allelic variant assocd. with; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Spinal muscular atrophy
(X-linked spinal and bulbar muscular atrophy, target **polypeptide** encoded by allelic variant assocd. with; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Animal tissue

Body fluid
(as test sample; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Amino acids, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(cleavage of, from terminus of **polypeptide** for sequence detn.; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Brain diseases
(dentatorubral-pallidoluysian atrophy, target **polypeptide** encoded by allelic variant assocd. with; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Transplant (organ)
(detn. of compatibility in; processes and kits for mass spectrometric detn. of **polypeptides**)

IT DNA sequences

Protein sequences
(for CAG trinucleotide repeat region of human with spinocerebellar ataxia 1; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Electric charge
(heterogeneity, redn. of, before mass spectrometry; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Enzymes, uses
RL: CAT (Catalyst use); USES (Uses)
(in cleavage of amino acids from terminus of **polypeptide** for sequence detn.; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Point mutation
(in gene for target **polypeptide**; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Avidins
RL: ARG (Analytical reagent use); BPR (Biological process); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(in isolation of biotin-tagged target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Nucleic acid amplification (method)

Transcription (genetic)

Translation (genetic)
(in obtaining target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)

IT Primers (nucleic acid)
RL: ARG (Analytical reagent use); BPR (Biological process); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)

- (in obtaining target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Cation exchangers
 (in redn. of charge heterogeneity before mass spectrometry; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Mass
 (molar, detn. of; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Immobilization (molecular)
 (of target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Promoter (genetic element)
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
 (primer contg., in obtaining target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Electrospray ionization mass spectrometry
 Forensic analysis
 Fourier transform ion cyclotron resonance mass spectrometry
 Genotyping (method)
 Ion spray mass spectrometry
 Ion trap mass spectrometry
 Mass spectrometry
 Matrix-assisted laser desorption ionization mass spectrometry
 Paternity testing
 Protein sequence analysis
 Quadrupole mass spectrometry
 Test kits
 Thermospray ionization mass spectrometry
 Time-of-flight mass spectrometry
 (processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Proteins (general), analysis
 RL: ANT (Analyte); BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Muscle atrophy
 (spino bulbar, target **polypeptide** encoded by allelic variant assocd. with; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Ataxia
 (spinocerebellar, type 1, target **polypeptides** encoded by CAG trinucleotide repeats assocd. with; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Haemophilus influenzae
 (tag **peptide** from, target **polypeptide** contg.;
 processes and kits for mass spectrometric detn. of **polypeptides**)
- IT c-myc gene (animal).
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
 (tag **peptide** from, target **polypeptide** contg.;
 processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Hemagglutinins
 RL: BPR (Biological process); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
 (tag **peptide** of, target **polypeptide** contg.;
 processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Peptides, biological studies
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (tag, target **polypeptide** contg.; processes and kits for mass spectrometric detn. of **polypeptides**)

- IT Diseases (animal)
 (target polypeptide encoded by allelic variant assocd. with
 condition or; processes and kits for mass spectrometric detn. of
 polypeptides)
- IT Aging (animal)
 Huntington's disease
 Prostatic tumors
 Transplant rejection
 (target polypeptide encoded by allelic variant assocd. with;
 processes and kits for mass spectrometric detn. of polypeptides
)
- IT Dystrophin
 MHC antigens
 p53 (protein)
 RL: ANT (Analyte); BPN (Biosynthetic preparation); PRP (Properties); THU
 (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP
 (Preparation); USES (Uses)
 (target polypeptide encoded by allelic variant of gene for;
 processes and kits for mass spectrometric detn. of polypeptides
)
- IT Chromosomes
 (target polypeptide encoded by allelic variant of polymorphic
 region of; processes and kits for mass spectrometric detn. of
 polypeptides)
- IT Polymorphism (genetic)
 (target polypeptide encoded by allelic variant of, of
 chromosome; processes and kits for mass spectrometric detn. of
 polypeptides)
- IT APC gene (animal)
 BRCA1 gene (animal)
 CFTR gene (animal)
 Mitochondrial DNA
 Oncogenes (animal)
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
 (target polypeptide encoded by allelic variant of; processes
 and kits for mass spectrometric detn. of polypeptides)
- IT Alleles
 (target polypeptide encoded by, of polymorphic region of
 chromosome; processes and kits for mass spectrometric detn. of
 polypeptides)
- IT Bacteria (Eubacteria)
 Fungi
 Protista
 Virus
 (target polypeptide from infectious; processes and kits for
 mass spectrometric detn. of polypeptides)
- IT Infection
 (target polypeptide from organism causing; processes and kits
 for mass spectrometric detn. of polypeptides)
- IT Coupling agents
 (target polypeptides immobilized to solid support through
 cleavable; processes and kits for mass spectrometric detn. of
 polypeptides)
- IT Light
 (target polypeptides immobilized to solid support through
 linker cleavable with; processes and kits for mass spectrometric detn.
 of polypeptides)
- IT Acids, uses
 RL: NUU (Nonbiological use, unclassified); USES (Uses)
 (target polypeptides immobilized to solid support through
 linker cleavable with; processes and kits for mass spectrometric detn.
 of polypeptides)
- IT Antibodies
 RL: ARG (Analytical reagent use); BPR (Biological process); THU
 (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC
 (Process); USES (Uses)

- (target **polypeptides** isolation with; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Genes
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (transcription and translation of, in obtaining target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT RNA
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (translation of, in obtaining target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Fragile X syndrome
 (type A, target **polypeptide** encoded by allelic variant assocd. with; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Myotonic dystrophy
 (type I, target **polypeptide** encoded by allelic variant assocd. with; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Protein conjugates
 RL: ANT (Analyte); BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (with tag **peptide**; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT Hemoglobins
 RL: ANT (Analyte); BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (.beta.-chain, target **polypeptide** encoded by allelic variant of gene for; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 221149-87-7
 RL: ADV (Adverse effect, including toxicity); ANT (Analyte); BOC (Biological occurrence); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
 (amino acid sequence; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 25104-18-1, Polylysine 25212-18-4, Polyarginine 26062-48-6, Polyhistidine 50812-37-8, Glutathione-S-transferase
 RL: BPR (Biological process); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
 (as tag **peptide**, target **polypeptide** contg.; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 58-85-5, Biotin
 RL: BPR (Biological process); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
 (as tag, target **polypeptide** contg.; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 221111-73-5
 RL: ARG (Analytical reagent use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (forward primer for PCR amplification of trinucleotide repeats assocd. with spinal cerebellar ataxia 1; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 9031-94-1, Aminopeptidase 9031-98-5, Carboxypeptidase
 RL: CAT (Catalyst use); USES (Uses)
 (in cleavage of amino acids from terminus of **polypeptide** for sequence detn.; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 9001-92-7, Endopeptidase
 RL: CAT (Catalyst use); USES (Uses)
 (in cleavage of **polypeptide**; processes and kits for mass spectrometric detn. of **polypeptides**)

- IT 9013-20-1, Streptavidin
 RL: ARG (Analytical reagent use); BPR (Biological process); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
 (in isolation of biotin-tagged target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 7440-02-0D, Nickel, chelates with solid supports 7440-48-4D, Cobalt, chelates with solid supports 7440-50-8D, Copper, chelates with solid supports 7440-66-6D, Zinc, chelates with solid supports
 RL: ARG (Analytical reagent use); BPR (Biological process); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
 (in isolation of tagged target **polypeptides**; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 207398-06-9P
 RL: BYP (Byproduct); PREP (Preparation)
 (in prepn. of photocleavable linker that can be used in oligonucleotide synthesis; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 108-24-7 498-02-2 627-18-9, 3-Bromo-1-propanol 7697-37-2, Nitric acid, reactions 42454-06-8, 5-Hydroxy-2-nitrobenzaldehyde 89992-70-1, 2-Cyanoethyl-N,N-diisopropylchlorophosphoramidite
 RL: RCT (Reactant)
 (in prepn. of photocleavable linker that can be used in oligonucleotide synthesis; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 187794-03-2P 207298-34-8P 207298-35-9P 207298-36-0P 207298-37-1P
 207298-39-3P 207298-40-6P 207298-41-7P 207298-42-8P 207298-43-9P
 221112-24-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (in prepn. of photocleavable linker that can be used in oligonucleotide synthesis; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 221149-86-6
 RL: ADV (Adverse effect, including toxicity); ANT (Analyte); BOC (Biological occurrence); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
 (nucleotide sequence; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 207298-33-7P 207298-38-2P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, as photocleavable linker that can be used in oligonucleotide synthesis; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 221111-74-6
 RL: ARG (Analytical reagent use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (reverse primer for PCR amplification of trinucleotide repeats assocd. with spinal cerebellar ataxia 1; processes and kits for mass spectrometric detn. of **polypeptides**)
- IT 9001-25-6P, Blood-coagulation factor VII 9001-28-9P, Factor IX
 9016-12-0P, Hypoxanthine guanine phosphoribosyl transferase 9030-40-4P
 RL: ANT (Analyte); BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (target **polypeptide** encoded by allelic variant of gene for; processes and kits for mass spectrometric detn. of **polypeptides**)

L108 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 1999 ACS

AN 1999:87094 HCAPLUS

DN 130:264395

TI Characterization of peptides from Aplysia using microbore liquid chromatography with matrix-assisted laser desorption/ionization

AU time-of-flight **mass spectrometry** guided purification
 Floyd, Philip D.; Li, Lingjun; Moroz, Tatiana P.; Sweedler, Jonathan V.
 CS Department of Chemistry and Beckman Institute, University of Illinois at
 Urbana-Champaign, Urbana, IL, 61801, USA
 SO J. Chromatogr., A (1999), 830(1), 105-113
 CODEN: JCRAEY; ISSN: 0021-9673
 PB Elsevier Science B.V.
 DT Journal
 LA English
 CC 9-16 (Biochemical Methods)
 AB Liq. chromatog. (LC) has been used extensively for the sepn. and
 isolation of **peptides** due to its high selectivity and peak
 capacity. An approach combining **microbore** LC with
matrix-assisted laser desorption/
ionization time-of-flight mass spectrometry (
MALDI-MS) detection is described to identify **peptides** in
 cells and guide the purifn. of **peptides** from the marine mollusc
 Aplysia californica. Direct **MALDI-MS** of neurons and processes
 provides mol. **mass** information for unknown
peptides with almost no sample prep., and LC-**MALDI-MS**
 allows the isolation and purifn. of these **peptides** from pooled
 samples, thus enabling new putative **neuropeptides** to be isolated
 from complex cellular samples. Both direct **MALDI-MS** and LC-
MALDI-MS are compared in terms of detecting **peptides**
 from neuronal samples. Using both approaches, two peaks from Aplysia
 californica connectives having mol. **masses** of 5013 and
 5021 have been isolated, partially sequenced and identified as novel
 collagen-like **peptides**.
 ST **neuropeptide** collagen purifn Aplysia LC **MALDI TOF**
 IT Aplysia californica
 Ganglion
 Liquid chromatography-mass spectrometry
 Matrix-assisted laser desorption
 ionization mass spectrometry
 Mollusk (Mollusca)
 Purification
 Sample preparation
 Time-of-flight **mass spectrometry**
 (characterization of **peptides** from Aplysia using
 microbore liq. chromatog. with **matrix-**
assisted laser desorption/
ionization time-of-flight mass spectrometry
 guided purifn.)
 IT Collagens, analysis
 Neuropeptides
 RL: ANT (Analyte); BOC (Biological occurrence); PUR (Purification or
 recovery); ANST (Analytical study); BIOL (Biological study); OCCU
 (Occurrence); PREP (Preparation)
 (characterization of **peptides** from Aplysia using
 microbore liq. chromatog. with **matrix-**
assisted laser desorption/
ionization time-of-flight mass spectrometry
 guided purifn.)

L108 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 1999 ACS
 AN 1998:675839 HCAPLUS

DN 129:272631

TI Application of capillary electrophoresis, liquid **chromatography**,
electrospray-mass spectrometry, and
matrix-assisted laser desorption/

ionization - time of flight - **mass spectrometry**
 to the characterization of recombinant human erythropoietin

AU Zhou, Guo-Hua; Luo, Guo-An; Zhou, Yong; Zhou, Ke-Yu; Zhang, Xiao-Dano;
 Huang, Le-Qun

CS Department Chemistry, Tsinghua University, Beijing, 100084, Peop. Rep.
 China

SO Electrophoresis (1998), 19(13), 2348-2355
 CODEN: ELCTDN; ISSN: 0173-0835
 PB Wiley-VCH Verlag GmbH
 DT Journal
 LA English
 CC 9-16 (Biochemical Methods)
 AB High performance capillary electrophoresis (HPCE), high performance liq. chromatog. (HPLC), matrix-assisted laser desorption/ionization - time of flight - mass spectrometry (MALDI-TOF-MS), online CE-electrospray ionization-mass spectrometry (CE-ESI-MS) and online LC-ESI-MS have been employed to characterize a heterogeneous glycoprotein, recombinant human erythropoietin (rHuEPO) expressed from Chinese hamster ovary (CHO) cells. The anal. was demonstrated through 2 specific levels of detail: the intact protein and tryptic digests of the protein. 6 Glycoforms of rHuEPO were sepd. by HPCE; seventeen tryptic fragments in a total of 21 nonglycosylated and glycosylated peptides were characterized; the O-linked glycopeptides were analyzed directly by CE-ESI-MS and LC-ESI-MS. In particular, 4 glycans of O-acetylation of sialic acid were identified in the O-linked glycosylated fragments. The mol. wt. of rHuEPO was accurately detd. by MALDI-TOF-MS.
 ST erythropoietin HPLC MALDI mass spectrometry electrophoresis; capillary electrophoresis HPLC MALDI MS erythropoietin
 IT Capillary electrophoresis
 Electrospray ionization mass spectrometry
 HPLC
 Matrix-assisted laser desorption ionization mass spectrometry
 (application of capillary electrophoresis, liq. chromatog., electrospray-mass spectrometry, and matrix-assisted laser desorption/ionization - time of flight - mass spectrometry to the characterization of recombinant human erythropoietin)
 IT 11096-26-7, Erythropoietin
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
 (recombinant; application of capillary electrophoresis, HPLC, electrospray-mass spectrometry, and matrix-assisted laser desorption/ionization - time of flight - mass spectrometry to the characterization of recombinant human erythropoietin)
 L108 ANSWER 4 OF 7 HCPLUS COPYRIGHT 1999 ACS
 AN 1998:252543 HCPLUS
 DN 129:25221
 TI Analysis of human serum albumin variants by mass spectrometric procedures
 AU Amoresano, Angela; Andolfo, Annapaola; Siciliano, Rosa Anna; Cozzolino, Rosaria; Minchiotti, Lorenzo; Galliano, Monica; Pucci, Piero
 CS Centro Internazionale di Servizi di Spettrometria di Massa, Naples, 80131, Italy
 SO Biochim. Biophys. Acta (1998), 1384(1), 79-92
 CODEN: BBACAQ; ISSN: 0006-3002
 PB Elsevier Science B.V.
 DT Journal
 LA English
 CC 9-5 (Biochemical Methods)
 AB A new strategy for the structural characterization of human albumin variants has been developed which makes extensive use of mass spectrometric methodologies. The rationale behind the method is to provide a rapid and effective screening of the entire albumin structure. The first step in this strategy consists in the attempt to det. the accurate mol. mass of the intact variant by

electrospray mass spectrometry often providing a first indication on the presence of the variant. An HPLC procedure has been developed to isolate all the seven fragments generated by CNBr hydrolysis of HSA in a single **chromatog.** step. A rapid screening of the entire albumin structure is achieved by the ESMS anal. of the **peptide** fragments and the protein region(s) carrying the structural abnormality is identified by its anomalous **mass** value(s). **Mass** mapping of the corresponding CNBr **peptide**, either by Fast Atom Bombardment **Mass Spectrometry** (FABMS) or by **Matrix Assisted Laser Desorption Ionisation Mass Spectrometry** (MALDIMS), leads to the definition of the site and the nature of the variation. This combined strategy was applied to the structural characterization of three HSA genetic variants and provided to be an effective procedure for the rapid assessment of their structural modifications showing considerable advantages over the classical approach.

ST albumin variant conformation mass spectrometry

IT Conformation

Mass spectrometry

Matrix-assisted laser desorption

ionization mass spectrometry

 (anal. of human serum albumin variants by **mass**

spectrometric procedures)

IT Albumins, properties

RL: PRP (Properties)

 (anal. of human serum albumin variants by mass spectrometric procedures)

L108 ANSWER 5 OF 7 HCPLUS COPYRIGHT 1999 ACS

AN 1997:514749 HCPLUS

DN 127:202243

TI An introduction to **electrospray ionization** and
matrix-assisted laser desorption/
ionization mass spectrometry: essential tools

in a modern biotechnology environment

AU Hop, Cornelis E. C. A.; Bakhtiar, Ray

CS Merck Research Laboratories, Department of Drug Metabolism, Rahway, NJ,
07065-0900, USA

SO Biospectroscopy (1997), 3(4), 259-280

CODEN: BIOSFS; ISSN: 1075-4261

PB Wiley

DT Journal; General Review

LA English

CC 9-0 (Biochemical Methods)

Section cross-reference(s): 1, 64

AB A review with many refs. The tremendous progress in biochem. and biotechnol. has been made possible in part by recent advances in anal. methods, in particular **mass spectrometry**. With the introduction of **electrospray ionization** (ESI) and **matrix-assisted laser desorption/**

ionization (MALDI), **mass spectrometry**

allowed the detn. of the mol. wt. of **peptides**

and proteins with a much greater accuracy than achievable by traditional methods such as SDS-PAGE and biogel **chromatog.** In addn., these

mass spectrometry expts. have become routine and can be

performed within minutes. ESI and **MALDI** (in combination with

enzymic methods) can also provide vital structural data such as the amino acid sequence and the sites of posttranslational modifications for

peptides and proteins with a sensitivity that competes favorably

with other methods. The use of ESI and **MALDI** is not limited to

peptides and proteins; anal. of oligonucleotides and

oligosaccharides has been simplified by these techniques as well. For

information about structurally significant noncovalent interaction between various types of biomols., ESI is probably one of the most convenient methods. Not surprisingly, we anticipate that the **mass**

spectrometers with these ionization capabilities will soon become std. equipment in all pharmaceutical and biotechnol. labs.
 ST review **electrospray ionization matrix assisted; laser desorption mass spectrometry** biotechnol review
 IT Biotechnology
 Electrospray ionization mass spectrometry
 Matrix-assisted laser desorption ionization mass spectrometry
 (introduction to **electrospray ionization and matrix-assisted laser desorption/ ionization mass spectrometry**: essential tools in a modern biotechnol. environment)

L108 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 1999 ACS
 AN 1997:85147 HCAPLUS
 DN 126:86519
 TI Enzyme system comprising ferulic acid esterase activity from Aspergillus
 IN Michelsen, Birgit; De Vries, Ronald Peter; Visser, Jacob; Soe, Jorn Borch;
 Poulsen, Charlotte Horsmans; Zargahi, Masoud R.
 PA Danisco A/S, Den.
 SO Brit. UK Pat. Appl., 63 pp.
 CODEN: BAXXDU
 DT Patent
 LA English
 IC ICM C12N009-18
 ICS C12N001-15; C12N015-55; C12N015-62
 ICI C12N015-55, C12R001-66, C12R001-685, C12R001-69
 CC 7-2 (Enzymes)
 Section cross-reference(s): 3, 17

FAN.CNT 1	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	-----	-----	-----	-----
PI	GB 2301103	A1	19961127	GB 1995-10370	19950523
AB	An ferulic acid esterase (FAE) enzyme system is described that is useful for prep. food and feed. One enzyme of that system is obtainable from the com. prepn. Pektolase CA from Aspergillus niger by chromatog . on anion-exchange DEAE-Sepharose FF and Phenyl-Sepharose HiLoad, gel filtration on Sephadex HiLoad, and chromatog . on MonoQ HR 5/5 anion-exchange column. That enzyme has the following characteristics: a mol. wt. of 29-36 kDa as measured on a SDS-Phastgel (RTM) (10-15%) or about 30 kDa as measured by MALDI ; a pI value of 3-4; ferulic acid esterase activity; a pH optimum of about 5 when Me ferulate is used as a substrate; and a temp. optimum of 50-60.degree. when MeFA is used as a substrate. The enzyme may be obtained by recombinant techniques. PCR screening of an Aspergillus genomic library with degenerate primers based on FAE tryptic peptide sequences yielded a PCR fragment encoding 77 amino acids of the enzyme. In the enzyme system, the esterase may be fused to a protein or enzyme, esp. a polysaccharide modifying enzyme. The effect of adding glucose oxidase/peroxidase and FAE to weak wheat flour was investigated by measuring the strength and extensibility of a dough prep. from the flour. FAE can also be used to hydrolyze water-insol. wheat bran pentosans, for the partial breakdown of cell wall material in feed and food prepn., and to prep. vanillin from ferulic acid-contg. material such as sugar beet and corn cob meal.				
ST	ferulic acid esterase Aspergillus; food prepn ferulic acid esterase; feed prepn ferulic acid esterase; sequence ferulic acid esterase gene Aspergillus				
IT	Antioxidants Aspergillus Aspergillus niger Bakery products Dough Feed				

- Food
 (enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Antibodies
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Genes (microbial)
 RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
 (enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Corncob
 Pentosans
 Sugar beet
 Wheat bran
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
 (hydrolysis by enzyme prepn.; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Protein sequences
 (of ferulic acid esterase activity from *Aspergillus*)
- IT DNA sequences
 (of gene for ferulic acid esterase activity from *Aspergillus*)
- IT Enzymes, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (oxidizing, food/feed applications of ferulic acid esterase in combination with; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Enzymes, biological studies
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (polysaccharide-degrading, food/feed applications of ferulic acid esterase in combination with; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Flavoring materials
 (prepn. by enzyme system contg.; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Fungi
 Plant (Embryophyta)
 Yeast
 (recombinant host for enzyme prodn.; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Genetic vectors
 Plasmid vectors
 (recombinant prepn. of enzyme; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT Phenols, biological studies
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
 (release from plant substrates by enzyme prepn.; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT 185703-92-8 185703-93-9
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (PCR primer; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT 185702-86-7P 185703-06-4P 185703-08-6P 185765-98-4P
 RL: BPN (Biosynthetic preparation); FFD (Food or feed use); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (amino acid sequence; enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT 134712-49-5P, Ferulate esterase
 RL: BPN (Biosynthetic preparation); FFD (Food or feed use); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (enzyme system comprising ferulic acid esterase activity from *Aspergillus*)
- IT 9000-82-2, Acetyl esterase 9001-37-0, Glucose oxidase 9001-92-7,
 Proteinase 9003-99-0, Peroxidase 9015-78-5, Glucanase 9032-75-1,

Pectinase 37278-89-0, Xylanase 37325-54-5, Arabanase 131384-64-0,
 Rhamnogalacturonase
 RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (food/feed applications of ferulic acid esterase in combination with;
 enzyme system comprising ferulic acid esterase activity from
 Aspergillus)
 IT 9040-27-1, Arabinoxylan
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
 (hydrolysis by enzyme prepn.; enzyme system comprising ferulic acid
 esterase activity from Aspergillus)
 IT 185703-07-5P
 RL: BPN (Biosynthetic preparation); FFD (Food or feed use); PRP
 (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (nucleotide sequence; enzyme system comprising ferulic acid esterase
 activity from Aspergillus)
 IT 121-33-5P, Vanillin
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (prepn. by enzyme system contg.; enzyme system comprising ferulic acid
 esterase activity from Aspergillus)

L108 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 1999 ACS
 AN 1995:545970 HCAPLUS
 DN 122:285871
 TI Mass spectrometric **peptide** and protein charting
 AU Feistner, Gottfried J.; Faull, Kym F.; Barofsky, Douglas F.; Roepstorff, Peter
 CS Beckman Res. Inst. of the City of Hope, Duarte, CA, USA
 SO J. Mass Spectrom. (1995), 30(4), 519-30
 CODEN: JMSPFJ; ISSN: 1076-5174
 DT Journal
 LA English
 CC 9-5 (Biochemical Methods)
 AB Six years after coining the term 'mass spectrometric
 (MS) **peptide** charting' for the component anal. of
 peptide mixts. in a whole tissue, body fluid, or an ext. thereof,
 the authors offer the current perspective of this field. **Matrix**
-assisted laser desorption/ionization and **electrospray ionization** have
 replaced plasmas **desorption** and fast atom bombardment as
 ionization methods of choice. At the same time, the upper
 mass range has been extended to now include most **peptides**
 and proteins of interest to reach on cell-cell communications. In addn.
 to qual. aspects, quant. applications of MS charting have become
 important. In combination with new database search algorithms, online
 liq. chromatog.-tandem mass spectrometry
 promises greater dividends from MS charting than are achievable with
 mol. mass matching alone. The authors discuss what is
 and is not yet possible, and consider foreseeable yeas for overcoming and
 current limitations. The intent is to encourage researchers in the biol.
 and medical sciences to take advantage of this powerful methodol. in their
 various fields of endeavor.
 ST mass spectrometry **peptide** protein charting
 IT Mass spectrometry
 (mass spectrometric **peptide** and protein charting)
 IT **Peptides**, analysis
 Proteins, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (mass spectrometric **peptide** and protein charting)